JANUARY, MDCCCLXIII.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, MOLLUSKS,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CCLI.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

TO CORRESPONDENTS.

Double Number.—I extremely regret having been unable to publish a greater amount of arrears: I can only refer to the pages of the current number to show that I have done my best. Nos. 252 and 253 will be issued simultaneously on the 1st of February. The translation of M. Guenée's work on Lithosia, and of Von Heinemann's monograph of Nepticula, by Mr. Stainton will certainly then appear, and I hope also every other paper received up to the 14th of January. The extended notices of Mr. Johns' 'British Birds in their Haunts' and Mr. Gould's 'Introduction to the Trochilidæ," will appear as soon as possible. The Double Number will be charged Two Shillings. to all who have not prepaid their subscription.

The time for prepayment is extended to the 10th of January, on the ground that last year several gentlemen complained of the rule for payment prior to the 1st of January having been too rigidly enforced.

I must still express my regret that the excessive sale of certain numbers—namely those for March, April and July, 1861, and for January, 1862—has exhausted the stock, and they are out of print, causing great inconvenience to naturatists who have delayed the purchase or not taken the work regularly. I would at once reprint any number that became out of print during the month of publication, but I cannot do so when all the regular Subscribers have been supplied, and the remaining stock has been exhausted by an irregular and unexpected demand, on which it is impossible to calculate. I shall be very glad to give One Shilling each for either of the numbers mentioned above, or Six Shillings for the four, if in good condition.

Mr. Stainton's 'Entomologist's Annual' was not published when this wrapper went to press.

I am now able to announce the price of Mr. Greene's 'Insect Hunters' Companion:' a cheap work like this—giving the young Entomologist every possible instruction for collecting Lepidoptera, whether in the state of egg, caterpillar, chrysalis or perfect insect, with full directions for killing, setting and preserving—has been, for fifty years, the one great desideratum in Entomology. My own 'Familiar Introduction' is too expensive for the schoolboy, and, moreover, contains a vast amount of information which he will scarcely desire to acquire until he has gone through the elementary course of finding, catching, killing and setting, taught by Mr. Greene. It will be published early in January, and the price will be One Shilling and Sixpence.

'Zoologist,' 1863, 'Annual,' 1863, and 'Insect Hunters' Companion,' together . . . . 16*s*.

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THE ZOOLOGIST FOR 1863.

Pp. 8313—8864.

LONDON:
PRINTED BY EDWARD NEWMAN, DEVONSHIRE STREET, BISHOPSGATE, N.E.

BRITISH MUSEUM

THE

ZOOLOGIST:

A

POPULAR MISCELLANY

OF

NATURAL HISTORY.

CONDUCTED BY

EDWARD NEWMAN, F.L.S., MEMB. IMP. L.-C. ACAD.

VOLUME THE TWENTY-FIRST.

WISDOM OF GOD IN CREATION.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

M.DCCC.LXIII.

" Hæc studia adolescentiam agunt, senectutem oblectant, secundas resornant, adversis perfugium ac solatium præbent, delectant domi, peregrinantur rusticantur." —Cicero.

" What can be a greater example of infinite power than a little portion of inactive earth rendered capable of contemplating itself as the work of infinite wisdom; and of considering the innumerable effects of that wisdom displayed in the surrounding creation."—Linneus.

" Natural history conducts us to a knowledge of the manners and œconomy of different animals, and their places and dependencies on each other in the great scheme of creation. Here the most insensible mind cannot fail to be struck with the infinite variety of means by which similar ends are accomplished; while amid the richest profusion of variety and beauty nothing is superfluous, nor any end attained, but by the most advantageous and compendious means."—Sir James E. Smith.

" One advantage of the study of Nature is that it is inexhaustible; but it boasts a still greater, that as far as I have been able to observe, it never loses its relish at the decline of life."—Id.

" Another great recommendation of natural history is the habit it necessarily gives of arranging our ideas and exercising our powers of discrimination. In this it vies with the study of Grammar and the Mathematics. It is the pursuit of truth,—a love of which is as inherent in every sound mind as the love of life. It is a science of facts; and the only way by which it can of itself be advanced, or contribute to the improvement of our understandings and powers, is by practical observation and enquiry. It teaches us to see and discriminate, and then to reason. The worm that crawls on the ground can *perceive*; the bird that flies in the air and builds its curious nest can *contrive*; but man only is allowed to contemplate, compare and weigh the designs of Infinite Wisdom."—Id.

BRITISH MUSEUM

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THE ZOOLOGIST

FOR 1863.

Acclimation and Breeding of Emeus in Surrey.

By William Bennett, Esq.

On the 23rd of June, 1860, by favour of the late Captain Neatby, of the 'Duncan Dunbar,' I received a pair of emeus, just imported by him from Sydney. They were somewhat unmanageable when first landed; and proving too large, and requiring too much room for the person at Sydenham for whom they were originally intended, they were kindly taken in for a short time by the authorities of the Crystal Palace, from whence they were removed here direct.

The first thing was to provide the best conditions I could to make them comfortable. For this purpose a space or paddock, of about a quarter of an acre, well shaded on one side, with a southern slope towards the river Mole, was inclosed by iron hurdles, with the house in which they were imported placed in one corner for night shelter. They were protected from the river, because, though fond of water, they do not know how to manage themselves out of their depth, the bottom in this part being very uncertain, and full of great holes. As soon as their propensity for bathing was discovered, a pond of a graduated depth was made for the purpose, in which they disport themselves precisely in the manner as a fowl in a dust-bath. They were driven into the house the first two or three nights; but exhibiting an invincible repugnance to this process from the moment they obtained their freedom, and not appearing to suffer, they were ever after left to their liberty in this respect; and though it was resumed in the winter, they never voluntarily sought shelter in any weather beyond that of the trees, but generally settled in the dampest spot they could find for the night. They did not appear at all to suffer even from being out in the snow, and I have seen them eat pieces of solid ice thrown out of the water-bucket, though their acquaintance with either of these phenomena, I apprehend, must be very rare in their native country.

From the moment the birds came into my possession, I put myself in communication with the Zoological Gardens, Regent's Park, in order to learn what I could of their habits, food and treatment: and here let me acknowledge the more than readiness with which all my enquiries were constantly met, and the effective advice and assistance that was always rendered, both by the intelligent keeper, Benjamin Misselbrook, and the indefatigable superintendent, Mr. A. D. Bartlett, at all times, both personally and by correspondence. The staple food is dog-biscuit, broken up into moderately small pieces, as the emeu has no means of mastication or fracturing, varied with bread, boiled rice, Indian corn occasionally, with a large proportion of chopped-up vegetables, such as lettuce and cabbage, greatly preferring the former, or, in its deficiency, any other succulent, milky sort will do, as dandelion, sow-thistle, &c. They are also very fond of fruit of any kind, in any condition of maturity, from the smallest apples that begin to fall, green gooseberries, unripe or ripe strawberries or raspberries, up to grapes or even wall-fruit, so that it is not decayed, about which they are very particular. The apple-parings are all saved for them in winter time. They feed likewise considerably on grass, some kinds of leaves, and will pick up green acorns; so that their bill of fare offers no anxiety. The young birds are fed on meal, mixed with hard boiled egg and vegetables chopped fine, together made into a ball with water or milk, dry enough to crumble. Besides their adult stock they had at that time one young one in the Gardens, hatched by means of an incubator, and nursed by a great Cochin hen. It was amusing to see the tall long-legged bantling trying to nestle to its strange foster-mother. The poor little thing lived to about four months, and then died of diphtheria. The young emeus are full-fledged and striped longitudinally, and nestle with their heads only beneath the parent bird.

From the information of the captain, my birds were either in their fifth or sixth year at the time of their arrival, and of course at full maturity. They appeared to prosper well, and improved in feather considerably. They became also much more gentle in manners, and at times very playful, with the most grotesque attitudes in the way of dancing, sometimes performing a regular *pirouette*, with their tall figures, and feathers acting as crinoline.

The severity of the winter was passing, when one morning, the 9th of February, 1861, on a heap of litter just outside the emeu-house, and slightly concealed by the straw being drawn over, was discovered an egg.

When first brought to me, having no idea there was any egg of that colour and character, I thought it the most wonderful natural production I had ever seen. It was very heavy, of a perfectly symmetrical form, dark green in colour, slightly fretted or shagreened, and looking more like a mass of polished malachite than any organized product. The beauty of the shell was displayed in the late International Exhibition, where the emeu's egg might be seen made up into ornamental drinking-cups, mounted in silver, of a variety of patterns, in the Australian department.

I communicated directly with the Zoological Gardens, and was duly informed that the egg was a perfectly normal one, that I might expect a batch of from ten to fourteen, at intervals of about three days each, and that in due course, if things went on favourably, the *male bird* would collect the eggs together in a rude sort of nest, would sit indefatigably for the long period of eight weeks, and would wholly take the charge of, tend and bring up the young ones when hatched.

My second egg was not laid till the ninth day, and then I was presented with one every third day regularly, up to the thirteenth egg, which took four days in making its appearance, and was the largest and heaviest of the batch, weighing 1 ℔. 5½ oz. They had steadily increased in size and weight from the first. After the deposit of the second outside the house, being still cold weather, and anxious to secure their vitality, I replaced each egg by imitation ones I had made and painted, and succeeded in inducing the process to take place while the birds were within the house at night. As the number increased, the two first real eggs were put back, in order to run as little risk as possible of dissatisfying the bird, and subsequently they were left as laid. They all underwent the process of arrangement and re-arrangement with every addition. One morning I found one of the birds busily engaged in shifting the eggs in the usual manner with its beak, and suspicion of its intentions being excited, I watched it till it succeeded in rolling one out of the house. I replaced it. The same thing was repeated the following morning. As there was a fall of snow of several inches, "This won't do," says I to myself, for fear of breakage, and I set my thoughts to work to interpret the meaning. I came to the conclusion that it was a certain indication the bird would not sit in that house, but was in search of some other place. By observing narrowly I noticed a partiality to one particular and moderately sheltered corner of the open ground, not very far off. I immediately had four poles erected, and an awning put over a sufficient space. Under this was scooped out a slight hollow, a layer of sand placed therein, with a covering of dry litter, and the nest-eggs removed thereto. To my great satisfaction the next egg was laid there, and on the 24th of March, 1861, the bird finally sat down.

Now comes the proper time for the question, Which bird really was it? The next day, as soon as I was satisfied the bird was fairly settled, I hastened up to the Zoological Gardens and informed the authorities of my success so far, and that their information was correct in every particular, except that my *female* bird was the one that, *secundem artem*, had taken to the nest,—at least the one the captain who imported them said and I had always taken to be the female emeu. With this the keeper seemed much surprised and dissatisfied, and began to question whether I really had the sexes. Upon his cross-examining me as to the marks and signs, especially as to the voices of the two birds,—upon the evidence of which I had greatly relied as determining the one with the deep and distinct call being the male bird,—he assured me I was mistaken; that that bird, which was still at large with me, was the female, and that consequently it was the male bird that had normally sat down. I was still, I confess, incredulous.

It is proper here to observe that in the emeu, as in several other Australian species, there is no characteristic male plumage, or rather the little difference there is, and various other usual outward signs, is *reversed.* Of my pair one is considerably larger than the other, stouter in limb and more robust in every feature; it has a slight top-knot, and goes strutting about, especially in damp weather, with its breast-feathers fully out, like a pouter pigeon, or rather some huge turkey-cock. It is usually the more courageous and pugilistic. It makes a deep, hollow guttural boom when under any gentle excitement of pride or pleasure, especially on damp evenings or in the still hours of the night, sounding like a small gong or distant muffled drum. The other is more agile and graceful in all its movements, corresponding with its slenderer frame, more docile and inquisitive, fleeter of foot, and with no voice beyond a suppressed hiss when angry, and a sort of grunt when distressed. The former is the one we took to be the male, the latter the female, and all our visitors, farmers and other natural judges who had the opportunity of observing their manners, agreed in the opinion. It was this last which took sole notice of the eggs (they were usually laid at night, when the birds were always together, so that it was not detected *which* actually laid them the first season), in the way of arranging and concealment, and that finally sat down upon them.

For the first month the bird sat most assiduously, not being observed to come off the nest, for the necessary food and water, oftener than twice in the week, and then for scarcely more than a minute at a time. Nine eggs was the number the birds had been set upon. Three were taken to the Zoological Gardens to be tried by an incubator. One or two got accidentally broken. The first good observation that was obtained of the nest when the bird was off, there were found to be *twelve* eggs in it, so that three more had been laid in to the original number. Which bird deposited these last? The total number of eggs was sixteen.

During the fifth week the bird became restless, and I began to be afraid would not hold out the long period. I thought it possible a change might be going to take place in the duties of incubation. But no relief was offered. The bird at large continued to walk about with the most stolid indifference. The one on the nest settled again, only coming off for refreshment twice a-day instead of twice a-week.

Everything went on prosperously till the seventh week had expired. My family were absent at our place of worship: on coming home, immediately on entering the premises and catching sight of the bird at large, with that instinctive perception we cannot always trace to any particular cause, I saw that something was wrong. I hastened to the nest, and found it deserted! The bird that ought to have been there was wandering about in a state of irritation and excitement, and had evidently been disturbed. All my hopes of young emeus suddenly sunk down to zero. I did everything I could devise to entice the bird back again to the nest, but it was all of no avail. When, from further observation, I was quite convinced it was a case of hopeless disturbance from some unknown cause, I reported the state of affairs in-doors, where the disappointment was fully equal to mine, and sat down to think.

It was really touching to see that fine nest of eggs,—not an everyday production in this country, and so near completion of their period for bursting into fresh life,—exposed to the cold world without protection! The first thing I did was to take out a bucket of moderately warm water, into which the eggs were all plunged, to arrest their further chilling, in case of there being any life in them. My wife then improvised a sand-bath, by means of a large saucepan or fish-kettle, which was placed over the boiler by the side of the kitchen fire. Into this the most likely eggs were transferred, and carefully covered with flannel. In the mean time she had performed the old farm-house experiment of immersing them individually in hot water, and pronounced that there was actual life in at least five of them. This encouraged us to persevere. I had previously ascertained, for the sake of information, the heat of an ordinary sitting hen, and found it to be about 93°—94°. I allowed 10° more, as probable for these large semi-tropical birds. I got my sand-bath, therefore, up to 104°, and endeavoured to keep it within the range of 100° to 108°. I wrote off to the Zoological Gardens, stating my misfortune, hardly supposing, but asking if anything could be done, and begging, if so, they would let me know by telegram; and I sat up with the sand-bath nearly all night, regulating the temperature, and occasionally turning the eggs.

The next afternoon—delayed, from our post-address not happening to coincide with our nearest railroad station—I received the following telegraphic message, "*Send up the eggs; we have a bird that will hatch them.*" The effect was almost electrical! Though how—what bird, what hopes, what certainty—was all a mystery, we had nothing to do but gratefully and implicitly to obey in faith, to the best of our ability. It was then just too late to catch our last train, with time to return the same evening, and having mastered the regulation of the temperature, and feeling confident there was no further injury being sustained, I did not think it well to run the risk of hurry, but took another night at watching and regulating.

The next morning a quantity of bran was made hot, the eggs carefully packed with it in a tin case, the whole rapidly enveloped in many folds of flannel, and despatched per first train by the hands of a careful messenger, with instructions to use every reasonable celerity. He arrived at the Gardens with them quite safely, and found the Superintendent ready to receive them: they were taken out still quite warm, and immediately placed under an emeu, which for the last fortnight had wanted to sit, without any eggs!

The reward of this care and perseverance against such a multitude of chances, and the really extraordinary part of the business, is that in the course of the following week four young emeus were hatched out, to the no small interest and gratification of all concerned, and no doubt to the astonishment of the bird, which had sat such an abnormally short time for the living result. The brood formed one of the advertised attractions of the Gardens during the early part of last season. One of them lived only about six weeks; another, which grew up with a defective spine, died in the winter; the other two still grace the Gardens, having arrived at nearly full emeu's estate. There was also a fine chick in an egg that had received a crack, and two or three other immature ones that did not come to the birth. The eggs in the incubator did not hatch.

My poor emeu, which had sat so long, and then was deprived of the natural reward, was very emaciated and out of spirits for some time. On close scrutiny, a day or two after, I found emeus' foot-marks along several beds in the garden, and tracked one pretty evidently forced between bushes, where it would not voluntarily have gone, as if driven. I learned subsequently they were seen that morning out of their boundaries. My interpretation is, that, knowing of the absence of the family, some stranger entered the premises, which are easily accessible, with or without evil intention, perhaps in ignorance of the bird and its critical condition, perhaps from curiosity, possibly with dog and gun for the purpose of shooting, or with rod and line for fishing, and unwittingly disturbed it,—a strange dog would lead to a fearful commotion,—had left the gate of the enclosure open, carelessly or in alarm, through which the emeus had rushed, had got them back again somehow, and effected his escape, uncognisant, it might be, of the whole mischief.

During the summer my birds improved, both in plumage and condition, upon the previous season. From all I could observe, I still believed the smaller one to be the female, the larger the male. On the 29th of December I went down, as was often my custom, about four o'clock in the afternoon, to see after their welfare. I was alarmed at finding the larger bird with symptoms of being very unwell. It hissed at me, and strained with its neck violently, as if choking, and I thought it must have got something in its throat. I was going immediately for assistance, when I bethought me I would try and get it into its house first, and for this purpose atempted to drive it, when it gave another great retch, and—*an egg dropped upon the ground!* The illness was all over; this bird quietly walked off with the most perfect indifference, and at the same moment down rushed the other one, in a state of the greatest excitement, rolled the egg—fortunately unbroken by the fall—over and over till pleased with its location, and finally covered it with leaves, thus definitively settling the question of sexes, the extraordinary *reversal* of habits and manners by which we had been misled, and the crowning fact of the *male* bird doing all the sitting, and, as I had afterwards the opportunity of witnessing, of bringing up the young ones entirely.

It was nearly six weeks earlier than the previous season for the laying to commence. In preparation, however, for the occurrence, I had had a much more suitable house built, better protected from casualties, open still in front,—in order not to give the air of confinement to these freedom-loving birds,—and hung inside with branches of the evergreen Conifers, to present somewhat of a natural and homeish appearance. The next egg followed on the fourth day after the first one, namely, on the second day of the new year; the third on the fifth day after that; and then there was an addition every third day, with perfect regularity, up to the thirteenth, which again took four days, and the fourteenth six days. There was no difficulty in inducing the laying bird to take to the new house. The same precautions were adopted as last season in removing the eggs as deposited, during the severe weather, and replacing them by artificial ones. Precisely at the same relative period as before, namely, after the laying of the thirteenth egg, the other bird—whom we may now unhesitatingly designate by his proper pronoun *he*—became increasingly busy about the eggs, and began to show symptoms of making the same kind of rude nest in the hollow provided, and finally settled on St. Valentine's Day, the 14th of February, 1862. The eggs, as last year, had almost regularly increased in size and weight from 1 ℔. 2½ oz. to 1 ℔. 7 oz., the average being considerably above the previous season. It was thought best to keep back the four first, as the smallest and least to be depended upon, and *he* was therefore set upon ten eggs, being perhaps as many as was prudent.

The next day I was favoured with a visit from Mr. A. D. Bartlett, the prompt and energetic Superintendent of the Zoological Gardens, who had been duly informed, from time to time, of the progress of events. He was pleased to approve of the arrangements entirely; but thought the bird would cover the whole number of eggs, and that therefore the four which had been kept back—and which I wished him to take to experiment upon, but he declined, as they had no bird then likely to adopt them, and he had no faith in the incubator—might be safely added to the nest. I divided the matter, giving the bird two more, quite sufficient, as it afterwards proved, and attempted to hatch the other two by means of an *impromptu* incubator, which I need scarcely say failed entirely.

We made several experiments to ascertain the heat generated by the bird, with a very susceptible Nigretti and Zambra's thermometer he had brought for the purpose, but probably from not giving time enough, or the normal heat not being yet developed, did not obtain up to quite 90° while the Superintendent was here. I pursued the experiments afterwards with one of Casella's pretty little instruments made for the purpose; but the last time it was put under the bird for night I was unable to find it again in the morning, without more disturbance than I liked to risk with so large an area of search. When discovered, which was not till the sitting was over, it was unfortunately broken. The highest temperature I actually observed was 96°. A large Dorking hen, with the same instrument, registered 103° as the maximum; average 98°.

Last season I noted that three more eggs were laid into the nest after the bird was settled. This year we had the opportunity of seeing the female bird deliberately walk up to the nest, and therein deposit another egg, without materially disturbing the sitting bird, who immediately took proper charge of it. The process did not take above one minute, so that it required to be in luck's way to have the opportunity of witnessing it. This must have been repeated four times, for the first time the bird was off long enough to enable me to get a good view of the nest, there were sixteen eggs in it! This, I believe, was too many. At times, during the long period of incubation, they were not all completely covered. The sitting was as assiduous as last year, but this season I adopted the plan of feeding the bird regularly on the nest, rather than he should famish himself as before. He took comparatively little, but the restless period at the end of four weeks did not supervene.

In the fifth week I found one of the eggs broken in the nest, with an embryo chick in process of formation. This was encouraging, independently of the loss. Exactly a fortnight afterwards the same thing occurred again. The progress towards chickenhood was very marked; the head, beak and legs were perfectly formed, and the feathers over the body had made their appearance. I was somewhat uneasy at the cause of these accidents, when, a day or two afterwards, happening to catch the bird off the nest, I saw the one that was at large—the hen bird—deliberately walk up, and, with a scolding air, endeavour, with her strong neck acting as a lever, to force her faithful partner down upon the nest again. In this attempt, of course, a struggle ensued, and thus it was no doubt the fractures had occurred. Not being disposed to run any further risk from the same cause, I shut the hen bird off from that time.

Eight weeks were completed without further accident. We were on the tiptoe of daily expectation. Nine weeks elapsed without result. We all began to look serious. Two days more expired fruitlessly, and I believe all but myself had quite given up all hopes. The bird still continued to sit unweariedly, and I thought of the last four eggs laid into the nest, the normal time for all of which could not have yet been exhausted. Judge of the reaction, when, on visiting the nest in a half melancholy, desponding mood, the first thing on the morning of Easter Sunday, the 20th of April, I descried an evident cast-out shell, and, on looking more closely, the striped body of a young emeu protruding from under,—not the wing, for it has none,—but the fostering side of its parent. I hardly knew how to break the tidings in-doors! The next day produced another, and two days more a third broke its way out of the shell. The bird continued to sit to the end of the week. Two dead chicks were found in two other eggs; the rest proved addled.

The eldest young emeu was weakly from the first. A pellicle of skin continued drawn over one eye for several days, and I am not sure it ever obtained its full sight. It died in the fifth week. The other two are in high health and thriving. They are now towards eight months old, have long lost their infantile striped plumage, are apparently about half-grown, and very saucy, and are beginning to think themselves veritable emeus.

I must not omit one remarkable set of phenomena that now became developed. For the first month the young ones were very tenderly watched and guarded within their house, the father being most assiduous, gentle and attentive in their nurturing. Having somewhat established themselves in the world, they were given a little more liberty. The first time the mother bird caught sight of the little ones she became much excited, seized one of them by the head and threw it a regular summersault up into the air. A scuffle ensued between the big birds, by which I became alarmed for the safety of the young ones, and was obliged to interfere. At first I thought it might be only jealousy or natural excitement that would soon subside, or an odd and antipodean way of showing pleasure, but, with further experience, became convinced it meant mischief on the part of the mother bird. They were therefore continued to be kept separated, but only by a wire fence, in order that they might be so far in company and become familiarized.

The time arrived when we thought the parent birds at least ought again to associate, and would no doubt be glad of each other's society. They were introduced accordingly by removal of a portion of the fence, when the female bird rushed upon the male, and drove him round and round, endeavouring to strike him with her strong foot forward, whenever she could get him into a corner, till I was obliged at last to separate them again. The loss of feathers, if not of blood, was considerable. Here was an unexpected dilemma, beyond the jurisdiction of Sir Cresswell. The experiment was repeated several times with the same result, until, in fact, the persecuted "weaker vessel" was driven by a fierce charge to leap the fence, in doing which he tore a long wound in his neck, and might have been seriously injured. This evidenced real hostility on the one part and fear on the other. Thinking the presence of the young ones might possibly be the cause of offence, and deeming they were now able to shift for themselves, I determined to wean them, and, as a preparatory step, removed them and their father to another inclosure, as much out of sight and hearing as could be arranged. They were some time in getting settled in their new habitat, especially the little ones, who appear to have the organ of locality very largely developed. In introducing the male bird again to his companion, it was necessary to take the young ones as well, as they would not be parted. Precisely the same scene recurred as at first, namely, a violent charge, by which the male was overpowered by the female and obliged to run; but, after a little while, the former gained courage, beat off the latter, and completely turned the tables, the young ones joining heartily in the chase with either party. This was repeated day after day, without any progress towards a settlement of the domestic difficulty, and to the extent of the heavier bulk of the hen bird becoming distressed by exhaustion, and she showed symptoms of being sorely frightened whenever she saw the approach of her lawful mate. I now separated the young ones entirely, and shut the male bird up to reduce his spirit in turn. This had the desired effect. On being let out together, after three days' confinement, *she* was again master. They were now transferred into a field, where there was plenty of room for them to run, without danger of doing much mischief to each other. Here the more agile and lithesome male readily escaped from his persecutor, and she had to give it up for awhile, until sufficiently recovered to renew the chase, with the same result. They are getting weary, after a fortnight, with this sort of daily occupation, and are gradually becoming more reconciled to each other's presence. I expect very shortly the male bird will turn again, assert his natural equality at least, and that then they will make it up for another season.

The final parting of the young ones with their father was very hard work. The poor little things, as soon as they found themselves alone, set up the most plaintive cries, lasting all through the night, and the following day or two, and beat themselves about, until one had made its head and neck quite sore, against the sides of the inclosure,—incessantly haunting that side towards where their paternal guardian, friend and playmate had been taken. He appeared to forget them in about a week. They still commence every morning with their plaintive cry of distress, though now the third week since their separation.

I ought to have mentioned, in the first place, that the species in my possession is Dromius irroratus.

W. Bennett.

Brockham Lodge, Betchworth,
November 15, 1862.

Zoology of Sakhalia Island.—In 'The Russians on the Amur, &c.' by E. G. Ravenstein, F.R.G.S. (1861), p. 269 *et seq.*, a letter is cited giving an account of Schrenk's journey to Sakhalia Island.* It is remarked that the "Tymy is a rather considerable river, which runs towards the north-east, through a wide valley, and before entering the sea of Okhotsk penetrates through the mountains of the east coast. The study of nature in this valley, as far as the season would permit, was not a little interesting to me. On the 15th of January the temperature of the water was 33°12′ Fahr. The river affords a refuge for numerous kinds of ducks and other birds, Anas boschas, Fuligula cristata, Cinclus Pallasii, &c. On the rocks which bound its banks it is not rare to meet with a very large eagle, Haliæëtus pelagicus, the symmetrical feathers of which furnish to the inhabitants an article of a very advantageous commerce with the Japanese. * * * The geographical distribution of animals accords with that of the trees. This island, in fact, or at all events its northern portions, may be included in the same zone with the mouth of the Amur and the nearest coast of the Okhotsk Sea. We find besides the reindeer, the common stag (*Cervus Elaphus*)†, the roe,‡ elk and musk ox, which inhabit the depths of the thickest forests in the interior. There is still in Sakhalia a wandering tribe who keep reindeer, while among the Tungurians that animal has disappeared, and with it the traces of a nomadic life." The notice of the musk ox must be a mistake, for this animal does not inhabit forests, but appears to be quite peculiar, at the present epoch, to the arctic "barren grounds" of America, which correspond to the Tundras of Siberia, with physical features similar to those of the interior of Lapland, so forcibly described by Linneus. I have no doubt that the equivalent of "musk animal" has been translated "musk ox," and that the Moschus moschiferus is intended, for this is a species known to inhabit the Amur territories, and is included as such in Mr. Ravenstein's list of the Mammalia of that region (p. 316). At page 320 this author notices that the tiger crosses over the Sakhalia.—*Edward Blyth; Calcutta, September* 17, 1862.

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* For some account of the adventures of Leopold von Schrenk and Charles Maximowiez, the former of whom directed his especial attention to the animal world, while the latter investigated the Botany of the new territories of the Amur, &c., on the part of the Russian Government in 1854, see chap. xi. of the same work.

† Probably Cervus Wallichii.

‡ Capreolus pygargus.

Uniformity in size of Pamphlets on Natural History, Botany, &c.—There are often pamphlets published on various branches of Natural History, and lovers of the Science are induced to purchase, either from the novelty of the subject or the known abilities of the writers. These tracts after you have read them too often become useless; they cannot be bound in volumes from the fact of their being published of all sizes, and not of one uniform size. I have three pamphlets that I should like to preserve, but they are each of them too small to be bound separately, and they all differ in size. I would respectfully suggest to your readers that if any of them publish separate papers, it would confer a favour on the lovers of Science if they would print them of the same size as the 'Zoologist,' with which they might be bound, and so preserved. The fact of their being that size would be an additional inducement to buy, and it would be no detriment to the general reader.—*John Whatt; Kirby Moorside, Yorkshire.*

The Kite (Falco Milvus) *near Kingsbridge.*—A fine old male of the common kite was shot on the banks of the Avon, near this place, on the 13th of October. Its general plumage is much lighter than any other specimen I have seen.—*Henry Nicholls, jun.; Kingsbridge, South Devon, October* 18, 1862.

The Roughlegged Buzzard (Buteo lagopus) *on the Norfolk Coast.*—On the 10th of November an immature specimen of the roughlegged buzzard was shot on Hasboro' beach. This bird was observed by a man who was shooting small birds flying slowly over the sea towards the shore, on reaching which it immediately alighted, and was shot whilst sitting on a heap of shingle. About the same time another fine bird, very nearly adult, was killed at Graton, near Lowestoft, in the adjoining county.—*H. Stevenson; Norwich, November* 18, 1862.

Occurrence of the Honey Buzzard (Falco apivorus) *near Eastbourne.*—A very fine honey buzzard was shot in an apple tree in the garden of Mr. J. Govvinge, of Birling Farm, near Eastbourne, on the 17th of September last. It had been seen about the neighbourhood several days. Its companion, which was also seen about the spot, was shot at Seaford a few days after, and is in the collection of the Rev. Mr. Dennis of that place.—*J. Dutton; Eastbourne, November* 16, 1862.

Ashcoloured Harrier (Falco cineraceus) *near Norwich.*—About the 10th or 11th of August a birdstuffer in this city received three young specimens of the ashcoloured harrier, from a nest found at Sutton, two of which were sent to the Zoological Gardens. These birds still breed with us occasionally in the eastern parts of the county.—*H. Stevenson; Norwich.*

The Great Gray Shrike (Lanius Excubitor) *at Leyton Marsh.*—A fine male specimen of the great gray shrike was shot by a young man named Watson, on the 28th of October, in a garden adjacent to Leyton Marsh.—*William Morris; Leyton, Essex, November* 3, 1862.

The Pied Flycatcher (Muscicapa luctuosa) *in the Isle of Wight.*—Several specimens of this bird were seen here in May last, and scarcely a year passes but a few specimens occur. I obtained one good specimen last summer, and have taken a nest and eggs. I have no doubt it would breed here annually if unmolested.—*Henry Rogers; Freshwater, Isle of Wight, November* 3, 1862.

Blackbird's Nest.—Last year a blackbird built its nest in a ventilator in a cowhouse. The hole was the breadth of the bricks, and in height about eighteen inches. The sides of the nest were pressed in by the bricks, and the whole nest was oval instead of round. The builders reared a family of five in it.—*John Whatt; Kirby Moorside, Yorkshire.*

Thrushes Singing in October.—This fact is noticed (Zool. 8281) by the Rev. H. Hornby as unusual. For five years out of six, for the last twenty, I have heard thrushes sing for a few days in October, generally between the 18th and 25th of that month; but in this month these birds are perched much higher in tall trees than in the breeding season, and it seems to me doubtful whether they are not young birds of the hatching of the same year, six or seven months previously. The birds do not sing so loud, nor do they go on in that unbroken routine usual in nesting time, but mutter out their notes a few at a time, and break off suddenly at the end of three or four notes, and commence again, seldom giving ten or eleven varieties of note at once, as they do in the joyous time of pairing. Their song in October is generally made on an extremely mild day. Considering the thrush as inferior only to the nightingale I have particularly noticed its movements at all seasons. On the 9th of February, 1847, I found a thrush's nest with three eggs in one of my shrubberies. This nest must have been begun to be "built," as they term it, in January. But a few days after I found it a heavy fall of snow, to the depth of twelve inches, destroyed all the hopes of the parent birds, as the eggs were never hatched.—*H. W. Newman; Hillside, Cheltenham, December* 1, 1862.

[In my brief editorial note the word "old" is omitted. It would have read correctly thus: "My own experience is that the old thrush is usually silent in October. The male birds of the year always make their first essay in song during that month." —*Edward Newman*].

Skylarks congregating in October.—The congregating of these birds so early as stated by Mr. Saxby (Zool. 8281) is a very rare occurrence, as I have heard them sing and seen them soar as late as the second week in November, particularly in 1852,—a warm November, and dry up to the 15th. To account for this, it is probable that the larks were sensible by some wonderful instinct that some unusually severe frost was not far distant, and were inclined to get a little more to the southward. In 1837—8 the winter did not commence in this county until after the 10th of January, 1838 (Murphy's year), but three days before that memorable frost visited us. I remarked to a friend that the thrushes, as well as some minor song birds, had ceased suddenly to charm us with their beautiful music. I can add that in the present autumn, about the last few days in October and first week in November, I observed missel thrushes and other birds visiting the berries of the mountain ash in a very public situation, in the road near my dwelling house, and eagerly searching for food; and the redwings and fieldfares were unusually tame several days before the late severe and early frost set in, and appeared suddenly in great numbers.—*Id.*

Golden Oriole (Oriolus galbula) *in the Isle of Wight.*—In May last a male oriole was seen in the garden of Plumley's Hotel. Mr. Lambert, the proprietor, snapped his gun three times at it, but it missed fire, and the bird sat apparently unconcerned preening its feathers. Many persons saw it and agreed as to the brightness of its yellow. At last some of them threw stones at it and drove it away, so that when Mr. Lambert sent for me it had flown.—*Henry Rogers; Freshwater, Isle of Wight, November* 3, 1862.

The Query respecting the Robin.—Like your correspondent Mr. Ransom, I have been in the constant habit of hearing it said that the young robins kill off the old ones.

The saying is a popular one, and implicitly believed in North Yorkshire. The robin is an early builder, and generally lays five eggs, and rears at least two broods a year. The general respect in which they are held causes their nests to be spared by plundering schoolboys, so that they may be supposed to rear their young with less drawbacks than other birds; yet the appearance of the ruddy breast, either in our gardens or hedgerows, in the latter end of July or August, is a rare occurrence, though the young birds with their peculiar plumage are numerous. Considering the advantages they enjoy they ought to be very common, and yet they cannot be said to be so. The hedge-sparrows, whose nests are plundered so frequently and so cruelly, are in all localities much more numerous; in my garden they are at least ten to one. There must be some cause or causes at work to keep down their numbers, for it must be admitted that they have advantages over all other birds in the laying of their eggs and rearing of their young. The question is what are those causes?—*John Whatt; Kirby Moorside, Yorkshire.*

The Bluethroated Warbler (Sylvia suecica) *at Brighton.*—On the 7th of November I saw a most beautiful specimen of the bluethroated warbler at Mr. Pratt's, taxidermist, Brighton. It was caught by a boy on the Downs, and is sold for £2.—*John Dutton; South Street, Eastbourne.* [See also Zool. 8281.—*E. N.*]

The Black Redstart (Sylvia Tithys) *in the Isle of Wight.*—Yesterday, being Sunday, the 2nd of November, no less than six male specimens were seen near Freshwater Gate, and I have had one specimen, a magnificent male, brought to me this morning by Mr. C. Theobald; a second was wounded, but not being carefully marked down was lost. No doubt that others will be obtained, as they have been observed to-day by different persons. Yesterday I heard an unusual call-note from a bird in an elm tree on which the leaves were rather thick. The call was something like "fid-fid, tack-tack." I think it was a bird of this species, but I could not get to see it. Since writing the above I have obtained three other specimens, two females and a male, so that I have now two pairs in excellent condition.—*Henry Rogers; Freshwater, Isle of Wight, November* 3, 1862.

Parrot Crossbill and Common Crossbill supposed one species.—Mr. Bree doubts the existence of the parrot crossbill (Zool. 8033) as a particular race. If that bird is to be united to Loxia curvirostra, why not also the small species of the Himalayas—Loxia himalayana? in which case the difference in size of the two extremes is great indeed. In America the L. mexicana corresponds to the L. pityopsittacus of Europe, but on the former continent L. mexicana is a more southern race than L. curvirostra, whereas in Europe L. pityopsittacus is the more northern race of the two. If all these are to be regarded as varieties of one species (in a more special sense than—say—the different kinds of siskin) why not also the two whitewinged crossbills of Europe and America respectively? And why does not the allied Strobilophaga Enucleator vary in like manner? I have seen many parrot crossbills, and consider them to be better distinguished from the common sort than are the greater and smaller European bullfinches, the single and double bullfinch of the French, the former of which is the true (Loxia) Pyrrhula of Linneus, and the latter of course the Pyrrhula vulgaris of Ray. Strange that the former of these birds should likewise prove an inhabitant of the Azores! There is a nearly allied bullfinch of Japan which Mr. Gould has figured in his 'Birds of Asia' as P. japonica of Temminck and Schlegel; perhaps an older name for this bird is P. griseoventris of Lafresnaye (Rev. Zool. de la Soc. Cuv. 1841, p. 24). In the Himalayas four species of this bird have been discovered, *viz.*, P. nipalensis of Hodgson, P.

erythrocephala of Vigors, P. aurantia of Gould, and P. erythaca of Blyth, a description of which last will appear in the forthcoming number of the 'Journal of the Asiatic Society.'—*Edward Blyth; Calcutta, October* 1, 1862.

Deposition of Eggs by the Cuckoo.—No one can say that this subject has not been well ventilated in the columns of the 'Zoologist, and Mr. Saxby deserves great credit for authenticating several rather novel facts. I am obliged to him also for adding one more singing bird to the number of foster-parents, the chaffinch. I believe most of the undermentioned birds are all noted down by Dr. Jenner, Mr. White of Selborne, and other great observers: the hedge accentor or common hedgesparrow, gray water wagtail, titlark, robin redbreast, redstart, chaffinch and the meadow pipit. The three first named are the prime favourites. Up to this time I have never heard or read of the young cuckoo being found in any other nest. The redstart is the only migratory bird, I think, among those named, and this last is very much in favour of Mr. Saxby's theory, as that bird generally builds in a wall or hole in a hollow tree, and others in cramped places most difficult for the cuckoo to enter. I now bid adieu for some time to this subject, and have to thank Mr. Saxby for an unmerited compliment in the last number of the 'Zoologist;' and when the middle of April arrives we may hope to welcome this extraordinary and eccentric bird in the words of a minor poet:—

Hail! beauteous stranger of the grove,
Thou messenger of spring;
Now heaven repairs thy rural seat,
And woods thy welcome ring.

What time the daisy decks the green
Thy certain voice we hear.
Hast thou a star to guide thy path,
Or mark the rolling year?

The schoolboy wandering through the wood
To pluck the primrose gay,
Starts, thy curious voice to hear,
And imitates thy lay.

In addition to the number of singing birds named I had forgotten the whitethroat, mentioned by Mr. White, in the 'Natural History of Selborne;' this makes two migratory birds. Mr. Willughby, a close observer, about a century ago, mentions the stock dove also, but I should doubt this being the case. But in corroboration of Mr. Saxby again, Captain Brown, F.L.S., in his edition of White's 'Selborne,' dated 1828, mentions having watched a cuckoo visiting the nest of a wagtail, and on the bird's return from the nest he fired a gun at the cuckoo, which dropped something from its mouth; and on looking at the spot where he observed this on the ground, he discovered the egg of a wagtail on the grass: he afterwards visited the nest of the wagtail and found one cuckoo's egg, an exchange having been evidently made by the cuckoo.—*H. W. Newman; Hillside, Cheltenham, November* 5, 1862.

A Young Cuckoo in a Redstart's Nest.—In 1859 a redstart built her nest in a hole of my garden wall. The entrance to the hole was so small that I could hardly get my hand in. I found the nest when it had only one egg in it, and I did not disturb it, as the redstart is a good friend to the gardener. Some time after, when I was working in that part of the garden where they had built, my attention was drawn to the hole by the loud clamour of a young bird, much too large for the young of the redstart. The bird was a young cuckoo, whose wants kept the foster-parents constantly coming and going. Before it was able to fly it found the hole very inconvenient, and took up its abode in the branches of a currant bush that overshadowed it. I have not the least doubt about the inability of the old cuckoo to get into the hole to lay her egg in the nest, for it was an impossibility. Did she lay the egg first and then introduce it into the nest by her bill? To this question I can give no definite answer, except that I know of no other way.—*John Whatt; Kirby Moorside, Yorkshire.*

Birds of the Amur: Zosterops chloronotus, Acanthylis caudacuta, Reguloides superciliosus.—Mr. Ravenstein's list of the birds of the Amur territories is avowedly copied from Schrenk, and M. von Schrenck's list has been criticised in the 'Proceedings of the Linnean Society' for January, 1861. The nomenclature would in some few cases be more satisfactory were it carefully revised, from inspection of Amurian specimens, by a qualified ornithologist of Western Europe. The Australian Zosterops chloronotus can hardly occur (absolutely one and the same) in North-east Asia; and as for Acanthylis caudacuta, so far is this from being specially an Australian species, it is not only the Hirundo ciris of Pallas, but the Acanthylis leuconotus of Hodgson, common in the Himalayan regions and found also in China. Mr. Gould, in the Introduction to his work on the Birds of Australia, mentions its having been killed in England, which is much less remarkable than the occurrence there of Reguloides superciliosus (Regulus modestus of Gould), another Amurian bird which is not uncommon in Lower Bengal during the cold season, and other feeble-winged species that might be adduced. But though I have not at this moment of writing the critique on M. von Schrenk's bird-catalogue handy of access, I feel that I have been anticipated in the above and other remarks that occur to me upon looking over the list as copied by Mr. Ravenstein. —*Edward Blyth: Calcutta, October* 1, 1862.

Acanthylis caudacuta and Reguloides superciliosus.—The only record of the occurrence of the spinetailed swallow (*Acanthylis caudacuta*) in Britain is by myself, in the 'Zoologist' for 1846 (Zool. 1492). The specimen in question was shot at Great Horkesley, near Colchester, was sent in the flesh to the late Thomas Hall, birdstuffer, of the City Road, and while there was examined by the late Mr. Yarrell, by the late Mr. Edward Doubleday, by Mr. W. R. Fisher, and by myself. It was then stuffed and returned to the owner, Mr. Catchpool of Colchester. It is the best authenticated record of any single straggler that has yet appeared in the British list. I think, however, that I was in error in giving this bird too hastily the name of "Australian" spinetailed swallow, which has led our superficial ornithologists to regard its simple history with doubt, so easily are non-practicals misled by a name. It must be candidly admitted that sufficient pains were not taken at the time either to identify it with, or separate it from, the spinetailed swallow of China, Nepal, or other parts of Asia. With regard to Reguloides superciliosus it is much to be regretted that Mr. Yarrell does not mention the country of the specimen from which his elegant figure was taken. I cannot conceive how this feeble-winged Asiatic species could have crossed Asia, Europe and the German Ocean, and I think a doubt may fairly be entertained whether Mr. Hancock's solitary example is really distinct from our ordinary goldcrest, of which it may possibly be a variety or an immature example.—*Edward Newman.*

The Purple Heron (Ardea purpurea) *in Norfolk.*—On the 1st of July an immature purple heron was shot on Hoveton Broad. This bird was extremely fat, both internally and externally, and was, I believe, a young female, there being no perceptible indications of sexual distinctions. I found the remains of two good-sized roach in the stomach, one at least five inches long.—*Henry Stevenson; Norwich.*

The White Spoonbill (Platalea leucorodia) *near Plymouth.* — On the 3rd of this month three white spoonbills were killed at one shot, out of a flock of four, on the banks of the St. Germain's River, in the vicinity of Plymouth. They were all young birds of the year, and two of them are now in the possession of Mr. F. C. Hingston, who has prepared them for his fine collection of British birds. The third was too much shattered to be preserved.—*John Gatcombe; Plymouth, November* 15, 1862.

Blacktailed Godwit (Limosa melanura) *at Yarmouth.* — On the 4th of September a pair of blacktailed godwits, in immature plumage, were killed at Yarmouth.—*Henry Stevenson; Norwich.*

Occurrence of the Solitary Snipe near Leeds.—Since my last communication (Zool. 8196) the solitary snipe has been seen in this county several times. On the 18th of September my brothers saw two near my father's house (Hornby Grange, Great Smeaton); the next day another, or probably one of the same two, was seen by a man fishing in the same neighbourhood. About the middle of last month my brother saw another of these birds, and last week I myself, while pike-fishing there, flushed another. I may also add that my brother killed (at Hornby), on the 22nd or 23rd of September, a very fine specimen of the green sandpiper. — *W. Christy Horsfall; Horsforth Low Hall, near Leeds, November* 8, 1862.

The Little Crake (Gallinula pusilla) *in Pevensey Marshes.* — A specimen of the little crake was caught in Pevensey Marshes about March last. It is in the possession of a mechanic here, who showed it to me in the flesh. — *John Dutton; South Street, Eastbourne.*

The Spotted Crake (Gallinula porzana) *in Pevensey Marshes.*— A specimen of the spotted crake has been lately shot in Pevensey Marshes, where they are not uncommon. It is now in my collection.—*Id.*

Occurrence of the Spotted Crake near Cambridge. — During October I had several examples sent me of this elegant species, and have been fortunate enough to see four or five others in the game-shops, besides specimens which had become the property of the various fen gunners. These men generally bring me anything they consider curious: they are, as a body, an intelligent class, and many reliable facts relative to the migration of the wild fowl, &c., may be gained from them. The spotted crake has been much more numerous this season than is its wont. I have noticed that their appearance has been as near as possible in a straight line through the north-eastern portions of this county (Cambridgeshire), and extending their line of appearance in the same direction through the adjacent counties of Huntingdon and Northamptonshire, and, I have no doubt, as far as the sea. It is a curious fact, but I am persuaded of its truth, from the experience of some years of careful observation, that various migrants—such, for example, as the hoopoe, grosbeak, rosecoloured pastor, &c. — have a peculiar trait of choosing a straight line, direct from the sea, through various counties. I have invariably found it to be so in the instance of the spotted crakes under consideration; not one has been shot or seen except in the straight line, as mentioned. The plumage of this species appears to become lighter, or rather darker, in its winter dress than in summer, and its legs and beak are also visibly darker in tone than those of summer.—*S. P. Saville; Cambridge, November* 7, 1862.

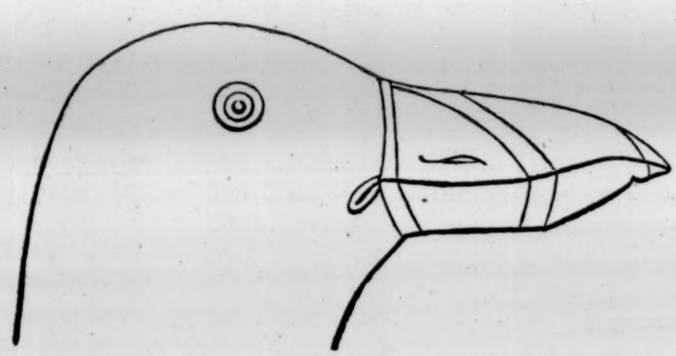
The Gray Phalarope (Phalaropus platyrhynchus) *in Norfolk.* — On the 31st of October a very beautiful specimen of the gray phalarope was killed at Salthouse, a very favourite locality; and another close by, at Wells.—*Henry Stevenson; Norwich.*

The Gray Phalarope at Brighton. — I have seen several specimens of the gray phalarope at Mr. A. Bryant's, at Brighton.—*John Dutton; South Street, Eastbourne.*

The Egyptian Goose (Anser ægyptiacus) *in the Cambridgeshire Fens.*—A week or so since I received a call from a gunner who had two magnificent specimens of this goose, one alive but winged, which he shot on the night previously in Burwell Fen, Cambridgeshire: they were in beautiful feather. It is sometimes asserted that these birds are only escaped captives from some ornamental piece of water. I would inform sportsmen holding this opinion that only about four or five years since I saw six which were shot out of a large flock on Whittlesea Mere; the flock consisted of twenty or thirty. The species generally makes its visits to us once in three or four years.—*S. P. Saville.*

The Redthroated Diver (Colymbus septentrionalis) *in Norfolk.* — Between the 1st and 15th of October three fine specimens of the redthroated diver, in full summer plumage, were killed at Cromer, Blakeney and Sutton; and more recently I learn that about a dozen of these birds have been shot off Sherringham, having probably followed the shoals of herring along our eastern coast. One of these birds being held up by the legs when dead, sixteen small fish dropped from its capacious throat. — *Henry Stevenson; Norwich.*

The Normal and Abnormal Puffins. — In the 'Zoologist' (Zool. 8003) there is a very interesting paragraph on the normal and abnormal puffins, in which the heads of the two birds are figured. In the latter end of last October I shot a specimen of the puffin, whose beak does not correspond with either of those figured. It is of a brown colour, without grooves; the lines represented on it are slightly elevated, and of a paler colour than the surrounding parts. The cheeks are pale smoke-colour. Eyes encircled by a narrow, naked, brown skin. Feet flesh-colour. This bird is certainly and distinctly the young of the common puffin; and if the bird only takes one



year to arrive at maturity, the abnormal must be a distinct bird; but is the puffin mature in so short a time, or does it, like others of the sea-fowl, require three years to attain maturity? I am of opinion it does, and consequently I consider the abnormal the young of the normal in first winter; the bird I figure is the same in second winter. How easily this complicated question of the normal and abnormal might be solved by procuring specimens of the young puffin before the autumnal migration! If the birds thus procured corresponded with the abnormal, the question would be ended; if, on the other hand, they correspond with my figure, it stands to reason the bill would not shrink during the winter to the size of the abnormal, and also lose its oblique bars. The razorbilled auk in its first winter is very analogous to the abnormal puffin, and was considered formerly a distinct bird. — *H. Blake-Knox; Bartragh, Dalkey, Co. Dublin, November* 14, 1862.

Postscript to the preceding Paper. — Pardon me for again troubling you with a sketch of a puffin's head shot by me on the 17th of this month. It bears a strong resemblance in shape to that previously sent you; it is, however, deeper, the upper mandible more arched, and the line where the two mandibles meet less curved. The bars on the surface are wanting; the line crossing it on the upper mandible indicates a narrow rather deep groove; that on the under mandible is much shallower. From the tip of both mandibles to this groove is deep orange-brown; the basal half of upper very soft, of a lead-colour; the corresponding part of under mandible dull flesh-colour. The wrinkled flesh about gape lemon-yellow; that round the eye brown. Cheeks pale smoke-colour. Toes—flesh, webs and sole—ochre. This description may be interesting to you, as showing the development of this bird. I am not aware of any author who describes the puffin in its young state during its various stages. I am uncertain if these birds are in their first winter or not; and yet I am convinced that the puffin could not acquire such a bill in one year. I do not like filling the pages of the 'Zoologist' with perhaps useless notes on this subject; but if you desire I will send a description of this bird; it may perhaps be interesting, as showing the progress towards maturity. Until it is decided how long the puffi remains immature, little can be done in distinguishing the two birds. The question seems to me far from being settled.—*H. Blake-Knox; November* 24, 1862.

[I have not thought it necessary to have this second figure cut, as my correspondent has most accurately defined the difference between the two.—*Edward Newman.*]

Sandwich Tern (Sterna Boysii) *in Norfolk.* — On the 13th of August a fine male specimen of the Sandwich tern was shot at Blakeney.—*Henry Stevenson; Norwich.*

Pomarine Skuas in the Orkneys. — On the 10th instant I saw a very fine adult pomarine skua (*Lestris pomarinus*) here, as it flew slowly past and within a few yards of me. I could not be mistaken about it. Unfortunately I had not my gun with me at the time, or I could have shot it easily. In November, 1857, I shot several immature specimens here, but since then I have not seen any. About that time I heard of an adult specimen being obtained near Kirkwall; but the one mentioned above is the only adult I ever saw here myself. On one of my collecting tours in Iceland I got adult specimens, as well as their eggs; but I did not see many altogether. — *J. H. Dunn; Stromness, Orkney, November* 17, 1862.

The Pomarine Skua in the Isle of Wight. — Another specimen of the pomarine skua was shot by Sir John Simeon's keeper at Swainstone, about six miles from here, on the 24th of October. I have no doubt it was one of those which were in company with the fine old male I shot on the 23rd (Zool. 8286): the present specimen is a young female, in a very interesting state of plumage. The neck is brown, the nape tinged with gray, the breast mottled with brown and dingy yellow: back dark umber-brown, margined with paler brown: middle tail-feathers two inches longer than the others. A third specimen was shot by Mr. Sawley on the 4th of November, but so damaged that it is worthless.—*H. Rogers; Freshwater, Isle of Wight, November* 5, 1862.

Skuas on the Coast of Dublin. — Skuas have been very plentiful on this coast this year; three or four may commonly be seen pursuing one gull. I have shot specimens of the pomarine and Richardson's (*Lestris Richardsoni*). A gentleman with me missed a splendid adult bird of L. catarractes, a much rarer bird here than the pomarine.—*H. Blake-Knox ; November* 7, 1862.

The Pomarine Skua off Beachy Head. — I shot a fine specimen of the pomarine skua off Beachy Head, in September last, which is now in my collection.—*J. Dutton.*

Pomarine Skuas on the English Coast. — Anonymous writers, whose communications I cannot quote *because anonymous*, and therefore of no authority, have published, in the 'Field' and a variety of local papers, accounts of skuas having been killed on our coast. These accounts are too numerous, and the character of the elongate tail-feathers is too marked, for us to suppose them erroneous; and I cannot but feel regret that occurrences of such interest should not be recorded in such a way as to insure their preservation.—*Edward Newman.*

The Land Tortoise Breeding in England.—I am not aware that there is any authenticated instance on record of the land tortoise's eggs proving productive in Great Britain, but having just returned from a visit at Tregullow, the seat of Mr. William Williams, I was made acquainted with the fact of two eggs of the tortoise having produced two young ones about five weeks since, and that they were alive and well in one of the pine-houses in the gardens. The accompanying particulars, furnished me by Mrs. Williams, will be read with interest, and I have much pleasure in forwarding them for insertion in the 'Zoologist.' I have only to add that I have, as a matter of course, visited the nursery this morning, and seen and handled the babies. They have the free use of their limbs, and move and walk exactly as full-grown tortoises do. They are now about the size of a small palm of a hand, the shell fully developed and indurated.—*Edward Hearle Rodd ; Penzance, November* 22, 1862.

"Tregullow, November 13, 1862.—The female land tortoise came from the West Indies, and was given to Mrs. Williams's mother upwards of fifty years ago; it was then about the size of a watch. It has been in the garden at Tregullow about thirty-two years. Four years ago another tortoise was obtained, which turned out to be a male: they were allowed to roam about the garden at their will. In 1860 some eggs were found, but from insufficient heat they were not hatched. About the 25th of July last the gardener, on passing a south border, observed the female tortoise making a pit with her hind legs in a very peculiar manner. On watching her, he found she had made a hole of some four inches deep, quite flat at the bottom. On returning, in about five minutes, he found she had deposited six eggs, and was in the act of covering them with earth. He immediately removed them in a flower-pot stand about two inches deep, filled with white sand, to a pine-pit, and placed them on a bed of tan. On the 19th of October last he observed two of the eggs had been hatched, and on looking around he found, much to his astonishment, two young live tortoises. The eggs are about the size and appearance of those of a pigeon. The young ones are kept in a wooden box in a pine pit, with some earth and moss, under which they nestle. They are fond of lettuces and strawberries, but do not eat much. They appear quite well and lively, moving about briskly. They are now a little larger than a half-crown. The eggs were not disturbed while in the pine-pit, the temperature of which during the time they were there was from 85 to 90 degrees by day, and from 65 to 70 degrees at night. The female measures 12 inches long, by 12¼ inches wide. The male, 8 inches long by 8½ inches wide, each over the back.

Immense take of Flounders on the Danish Coast.—In a letter from my brother, dated Gothenburg, November 28, 1862, he writes:—"There have been caught, after the late storms on the coast of Denmark, a quantity of flounders, estimated at two and a half millions in number, and they say the sea is still literally full of them. They don't know what to do with any more that they may take, though there is a salting establishment in full work already. Five hundred men were employed day and night for three weeks in catching these fish."—*N. F. Dobrée; Hull, December* 2, 1862.

Rambles in search of Land-shells. By ARTHUR ADAMS, Esq., F.L.S.

ONE of the earliest rambles I find recorded in my journal is at Rio, where the 'Actæon' was engaged some time in surveying the islands at the entrance of the harbour. In the month of February, 1857, as I jump ashore at Praya do Botafogo, the white sandy beach is strewn with shield-like Clypeasters and the bleaching forms of Ocypode and Hippa. All around rise lichen-varied granite rocks, large and smooth, and speckled over with green clumps of huge columnar Cacti. As I go inland I encounter a host of floral beauties—coronate, trumpet-shaped and star-like; and among them I notice the modest flowers of Thunbergia, the blue blossoms of Plumbago, and the crimson corymbs of Asclepias. At the bottom of a well I cast a covetous eye on a long-necked water-tortoise, a species of Emys, which, however, cannot be persuaded to enter the bucket which is usually suspended above him. The green-topped tapering palms are splendid, and there are numerous delicate pink-flowered orchids clustering among the branches of the trees. Here, among the humid undergrowth, crawling on the decaying leaves of plantains and bananas, I discover that singular snail, Streptaxis contusa, *Fer.* The animal is of a deep straw-colour, inclining to orange; the ocular tentacles are long and very slender, with the eyes at the extreme tips of the slightly swollen bulbs. In the only other account of the animal published, Couthnoy has described the oral or inferior tentacles as bifurcate, but they are in reality short, with a small knob at the ends, and with a subulate oral appendage, nearly as long as themselves, attached to their inner side. The buccal mass or mouth can be extended in the form of a short proboscis, similar to that of Glandina truncata, *Say*, beautifully figured in Binney, Plate 59. Like Glandina and Testacella, the body is slender and much produced in front; the sole of the foot is narrow, with nearly parallel sides; and the tail is pointed and simple behind.

In Von Marten's last edition of Alber's 'Heliceen' Streptaxis is placed at the end between Pupa and Succinea, but our examination of the animal shows that it should be removed altogether from the herbivorous Pulmoniferæ and form a separate subfamily, Streptaxinæ, to be placed between Testacellinæ and Oleacininæ, the two other groups of zoophagous Pulmoniferæ.

Raza, a small island off the entrance of Rio harbour, is, I find on landing, a vast mass of granite, partly bare and partly covered with vegetation. The winds and the waves have acted on the primal mass in the course of ages, and have in some parts reduced the constituents to powder, obliging you to tread on golden dust, composed of hornblende and mica. In the deep blue sky above soars the man-of-war bird, hundreds of restless gulls hover and scream around the base, and from his barnacle-clad rock the redbilled oystercatcher scans the stranger with curious eye. As I scramble up the rough-hewn granite steps, myriads of Ligiæ or sea-lice swarm across the path, golden-eyed lizards dart among the loose stones, ants swarm up our legs, Polydesmi and Juli abound, a black Gecko pokes out his warty head to look at us, and a huge black cockroach gathers around her a numerous brood as a hen does her chickens. Opatrums are found on the barren spots; blue, brown and yellow butterflies hover gaily over the flowers of Convolvulus and Tradescantia, and leaping among the stunted brushwood are of course legions of noisy long-shanked grasshoppers. There is a revolving light on the islet, and the bland custodian of the lighthouse informs me that—attracted by the brilliancy thrown back from his highly-polished reflectors—winged insects come by thousands round his lantern, tapping at the glass all night long. The only mollusk I find on the island is a little Pupula hiding in the crevices of the rocks.

On nearing the shallow bay at Praya-do-Tinboy horseman crabs are seen careering over the yellow sand, and I capture with much trouble about a dozen of beautiful silvery white Cicindelæ, which alight upon the sand, run a little way and are off again. Growing from the fissures of the rocks that skirt the shore are numbers of magnificent aloes, with flowering stems twenty and even thirty feet high. The minute investigation of one of these astonishes me quite as much as did the strawberry plant St. Pierre. Helicinæ lurk under the decaying footstalks; Hemiptera of extravagant shapes repose on the long green leaves;

Nephilæ, giant spiders, with gold and silver spotted bodies, hang head downwards in the middle of wide-spread webs suspended from point to point; other spiders, shortlegged and bloated, guard silken bags filled with little ones, in the deep axils of the leaves, while among the ragged fibres of the root are Juli, Centipedes, and Polydesmi. Besides the Helicinæ I find a little brown Bulimulus.

At the little precipitous Ilha-do-Foucinhos, I discover Cyclotus Inca or an allied species among the dead leaves on the summit, and in a little pond at the base a Planorbis and a Cyclæus. In kindling a beacon-fire our hands become smutty, when looking around we spy an excellent basin formed by Nature out of the core of a decapitated aloe, and containing about a quart of clean rain water. At the base I unearth a huge annelid, eighteen inches in length, a species of Chætogaster I believe. Turkey buzzards watch our movements from aloft, and solitary on a pointed crag is a noble bare-legged falcon. Another day I cross the "hidden waters," as the Indians call the harbour, and find myself among groups of negroes holding a market squatting on the ground; they are laughing and chattering as is their wont, gaily discussing each others merits and recommending the flavour of their durians, mammy-apples and bananas. In the far distance are the Organ Mountains, and glorious glimpses of purple valleys and emerald hills. Under my feet, among old fallen trees, are crawling Veronicellæ, singular members of the slug tribe hitherto unknown to me.

The uniform sober features of the Cape offer a striking contrast to the glowing scenery of Rio, but I must linger there a moment, if only to mention a peculiarity in the habits of Helix globulus, *Müll.* As I am wandering about the broad base of Simonsberg I take refuge from a storm of wind and rain in a fish-house near the shore, and the amount of fish I encounter is quite startling. There are fish in great salt tubs, heaps of fish lying on the ground, cartloads of fish, boatloads of fish, fish split open on long tables, fish covering all the rocks outside, stacks of fish, fish by thousands drying on poles. The weather has been stormy of late, and as I proceed along the shore I encounter a stranded fiddle-fish or Rhinobatis, half shark and half ray. The strand is covered with other casualties to fish and crab, and an entire flotilla of violet snails or Ianthina has suffered shipwreck. Out at sea only two little boats are visible fishing for snook, between Noah's Ark and the Roman Rocks. The wild waves come tumbling in with a deep hollow roar, and on the huge bare rocks sit the cormorants drying their dusky wings, and the foolish penguins, gorged with fish, dozing in the fitful sungleams. Three skulls of the right whale are bleaching on the sand, and the eye of the great sea eagle watches us from above. On passing inland from the beach I observe, crawling on the bare spots between the scanty scrub which grows on the sandy soil, numbers of snails. These I find are Helix globulus of Müller, a species of snail belonging to the Old World group, Dorcasia, examples of which occur in China, India and Australia, as well as in Southern Africa. The only indication of their habits I have met with occurs at page 108 of Albers' 'Heliceen,' where H. fodiens, *Pfr.* is stated to have been found in the ground by Mr. Cuming in the island of Luzon. In dry weather not a single example of Helix globulus is to be seen on the sand, but no sooner does the rain penetrate the soil than hundreds make their way to the surface, moving quickly by means of a greatly expanded, flattened, creeping disk, the "colour of the desert." Among the broom-like brushwood under the leaves, creeping timidly forth, but always on the surface of the moist sand, I observe another Pulmonifer, a little pale reversed Pupa, Faula Kurrii, which Albers says, on the authority of Krauss, "leben auf Pflanzen."

We have enjoyed a ramble about Rio and another at the Cape, and now we will transport ourselves in imagination to China and Japan.

On all the elevated breezy downs, and they are very numerous along the sea-board of Shantung and Liatung, and more especially on their exposed and rounded summits, where the soil is scant and stony, and where hardly anything flourishes but thistles, I find Helix pyrozona, *Phil.*, Acasta ravida, *Bens.*, a species of the Nanina group, and Helix (Dorcasia) bolus, *Bens.* Two new species have also occurred to me in similar situations, but which have not yet been christened. But none of these snails are half so attractive as the humming-bird hawk-moths, with which these localities are always associated in my mind. The sedums are in full flower, and cover the surface of the earth with little golden pyramids, and around these magazines of nectar hover the Macroglossæ, the only sentient things save the snails one claims acquaintance with on these barren heights, unless, indeed, you cross the highest ridge at the highest point, and look down upon the jagged fractured rocks of black basalt, when you may see the gulls and the oystercatchers, and hear their melancholy wail and the harsh cry of the fishing cormorant, mingling with the roar of the great toppling waves as they come thundering in upon the boulders at the base. But in the quiet sunny spots where the sedums bloom, round and round hover the pretty moths, vibrating their wings and probing with their spiral tongues the yellow pyramids of stars which gladden the dull earth.

As far as my experience goes I have found North China very unproductive in land shells, and Mr. Fortune, who has explored the woods and mountainous parts of Chi-kiang, informs me that slugs and snails are by no means abundant. Acusta Redfieldi, *Pfr.*, is not very uncommon, a little Streptaxis (Fortunei, *Pfr.*) was found. Zua hebrica and Ena Fortunei, besides one or two little species of the Pupa tribe not yet described, are among the few North China Pulmonifera already known. This scarcity of Helicidæ may possibly be owing to the barren granite nature of the hills, and also to the high state of cultivation of the plains and valleys. On the hills you may breathe very pure air, and gaze your fill on picturesque rugged rocks, but you will see few flowers and no blooming heather, nor will the red sandy loam below reveal the outline of fairy tarn or lakelet. Snails are said to have a great partiality for limestone, but here all is granite. The vegetation, moreover, is never varied or luxuriant enough to supply the wants of any great herbivorous snails whose *pabulum vitæ* is leaves. On upland slopes the pale yellow stars of Chrysanthemum chinense may attract the eye, and sometimes a modest violet peeps out from beneath the shelter of a clod, or a dull purple Ranunculus is seen, or a little deep blue gentian emerges from the sandy loam. The rest of the vegetation is made up of burdock, wormwood, toad-flax and hawkweed, and the sandy parts are covered with a hard spiky grass.

In Japan, on the east coast of Niphon, and not far from Tatiyama, are two small islets named Takano-Sima and Okino-Sima. We are prohibited from rambling on the mainland, for it belongs to a Daimio unfriendly to foreigners, but the two little islets are placed at our disposal for the purpose of exercise and recreation during our stay at this anchorage. Here undisturbed I am enabled to watch the habits of many molluscous creatures, for my observatories are exposed to the rolling waves of the Pacific, and have not been disturbed, except by fishermen, for ages. The narrow beach is fringed with a low brushwood, in which the white umbellate flowers of Crinum asiaticum are conspicuous, while the interior of the islets is occupied by huge fig trees (*Ficus nitida*), which with firs and larches form dark shady labyrinths, the chosen abode of Helix Simodæ, *Jay*, and a little Bulimulus. The proliferous fronds of the handsome fern Woodwardia japonica spring in profusion from the humid soil, and the trunks of the Coniferæ are green with Drymoglossum, a curious fern with narrow fertile fronds growing erect from slender twisted stems. Here in the calm warm days come fishermen to haul the seine, and boatloads of women follow from the mainland to assist their husbands. The song and merry laughter of the women hauling at the rope, and the noise and splashing of the men in the water, mingle with the loud cawing of the rooks in the great fig trees, and produce an impression on the mind novel and pleasing. As the seine comes slowly in, besides goodly fish of the larger sort, we notice cow-fishes and sea-scorpions, squids, cuttles, file-fishes and long-clawed flat-legged swimming crabs. Crawling on the rocks between tide-marks, where the boulders are covered with soft green Fuci, or hiding in the fissures and furrows, are numbers of Perionia Tongana, *Quoy and Gaimard,* looking like shell-less Chitons, but which are veritable Pulmonifers living in the sea.

Not far from Tatiyama is a snug little harbour called Tago, in which are numerous little caves, where one may escape from the prying inquisitiveness of the people and collect in peace. In all these small bays, sandstone rocks, clothed with stunted oaks and dwarf firs, rise abruptly from the shingle of the beach, and a few miles inland are green mountains which tower up all around. Against the water-worn rocks on the beach are loose rounded stones heaped up by the efforts of the ever-restless tide. The yellow flowers of Hemerocallis, the red-spotted turbans of the tiger-lily, a trailing Clematis and a pretty blue Scilla grow on the shingly soil, while Pitcairnia straminea, Lycopodium lineare, Pteris cretica and Dendrolium fill up the fissures of the cliffs. Above high-water mark, but exposed to the saline influence of the tides, adhering to the under surface of the stones, crawling in damp shady corners, or nestling in the weed-grown crannies, are thousands of Realiæ, small cyclostomatous snails. Not only Realiæ, however, for Lygiæ run out in great excitement, Armidillidia roll themselves up in balls, crickets hop nimbly aside, and sinuous Geophili hastily seek the shelter of surrounding stones. The animal of this species of Realia is light black; the tentacles are short, cylindrical and obtuse at the tips; the eyes, large and black, are placed on tubercles connate with the bases of the tentacles; the muzzle is broad, annular, depressed and rounded in front; the foot is short, narrowed in the middle and obtuse at both ends, and carries the operculum close to the body under the shell. The creature crawls quickly, exactly like Assiminia, placing the muzzle in advance, moving forward the fore part of the body and rapidly bringing up the hind part. The operculum is not visible when the animal is on the march. Thus we see that Realia affects the same localities, and has all the habits and mode of progression of Assiminia. Both genera live within the influence of the tides above high-water line, and when on the coast always within reach of the spray. The only difference between the two is in the position of the eyes, which in Realia are basal. I think the genus might with propriety be removed from Cyclophonidæ and be placed in the family Assiminiidæ.

We are now at Nagasaki in the South, and leaving the town I ascend the hill on the right of the harbour through fields of ground-nuts and bearded wheat. The grassy banks which form the boundaries of the land are planted at intervals with elegant wax trees, which are often garlanded with Cissus, vines and ivy. Among the loose stones glides the slender blue-tailed lizard, and the abundant red fruit of a species of Potentilla offers a sorry substitute for the strawberry. My road next lies in a sunken rocky path, overarched with trees like some of the North Devon lanes, and here among the dead leaves on the ground I capture specimens of a very fine Carabus, and as I emerge once more into the merry sunshine I see Apoderus, Hispa, and Cassida alighting on the sunlit leaves. At this season of the year there are but few flowers, but you will notice everywhere the white clustering blossoms of Delphinium, the white dog-rose and the welcome fragrant honeysuckle.

And now I reach the pine-clad summit of the hill. All is silent and solemn; no other bird is seen but a large kite which hovers above the trees, no other sound is heard but the continuous cawing of the rooks and the loud grating noise of the Cicada. The hills of Tsu-Sima are composed of slate-stone, and in that island among the loose moss-grown stones among the trees I discover a new species of Pterocyclos, Cyclotus Fortunei, *Pfr.*, Cyclophorus japonicus, *Ad.*, Alycæus spiracellum, *Ad. and Rve.*, and Pupinella mindorensis, *Ad. and Rve.*, but here the basis of the hills is granite, and I cannot find a single species of operculate land shell. Among the foliage of the trees I notice Hadra orientalis, *Ad. and Rve.*, a handsome banded snail, and Hadra peliomphala, *Pfr.* In the dense brushwood on earthy banks I find Trochomorpha japonica and the common Acusta Sieboldi. With the exception of some dark-winged butterflies insect life seems very scarce, the flat stones even on being turned reveal nothing but woodlice, centipedes and Cymatiæ. A small yelping cur detects me in the act of transporting some bundles of brushwood in search of snails, and, anon, his owner, a broad-faced smiling Caliban, appears. The honest woodcutter is even more astonished at my voluntary labour than even his "friend on all fours," but muttering "Moosi," which means "creeping things," he rattles a bit of chain, saying interrogatively, "Ma?" which being interpreted signifies "Have you seen my pony pass this way?" I shake my head and pointing to my collecting-bottle repeat "Esha." On this hint, which means "Doctor," I am treated with profound respect, and Caliban suddenly vanishes in the bush, but speedily returns both hands filled with beetles. Thus we are mutually understood by the use of three words only.

From my elevated position in the fir-clearing I now look down upon the land-locked harbour. To the right is Desima and to the left is Pappenberg, down whose steep sides it is said fifteen thousand Christians were once precipitated. All around green-wooded hills, checkered with fields of yellow wheat, rise up from the water's edge; the dark smooth surface of the harbour is dotted with strange-fashioned craft; the monotonous loud cries of the boatmen, "ush-shia, ush-shia," faintly reach my ear, as bending to their powerful sculls these semi-nude Athletæ urge their sharp-prowed boats swiftly through the water. Parties of women sing gaily as they voyage from shore to shore, fishing boats are casting their nets, clean unpainted trading junks spread their white sails to the favouring breeze, and the dark banner-bearing barge of the Japanese Governor, propelled by many oars, and looking like a galley of old Rome, moves with slow and solemn state to the sound of music.

Arthur Adams.

Cyclas pallida, Gray: *Sphærium ovale*, Ferussac.—Mr. Jeffreys, in his excellent and interesting 'Manual of the British Mollusca,' at page 9, says, "Mr. Daniel found this species in the Grand Surrey Canal," &c. It was in the year 1851 I found a single example, in company with C. rivicola and C. cornea: it was my first year of entering on the study of Conchology, and I was in London for only a few days; and after that a long absence from England prevented my again searching for it. However, on my return this summer I have had the satisfaction of finding it in great abundance in the same and another near locality, always in company with C. caliculata, *var.* Broctonianum. They are precisely similar to those from the Regent's Canal, but a little paler and brighter than from the Leeds and Liverpool Canal.—*John E. Daniel*; 10, *Trigon Terrace, Clapham Road, S., November* 11, 1862.

Mutation of Species.—Most of your readers will have perused the admirable paper of Mr. Edwin Brown (Zool. 8249) on the mutability of species. This subject has so much interest for me that I hope I may be pardoned for retouching a subject already so ably handled. During the spring of this year, which was spent in an entomological excursion to the Canary Islands, I have captured about 340 species of Coleoptera, 120 species of Hemiptera, and 130 species of Lepidoptera. Of course, since my return my attention has been largely given to the arrangement and nomenclature of these specimens. Many of them differ very slightly from European forms, *e.g.*, Dasytes subæneus, *Woll.*, and D. flavipes, *Fab.* In these and analogous cases may we not admit the principle of mutation? Should we not rather read D. flavipes, *var.* canariensis, &c., than multiply cognate species? Variations, due apparently to nutrition, especially demand attention. Haltica Allardii, which feeds on the Physalis aristata, differs but very minutely from our H. Atropæ, whose food-plant, as implied by the name, shares the same natural order, and somewhat similar properties. Multitudes of our Tincina seem thus to vary from the effects of nutrition, *e. g.*, Cemiostoma laburnella and C. spartifoliella; or, to draw an illustration from the Canaries, our Catoptria ulicetana, and an almost identical form from the Retama, growing at an elevation of 9000 feet on the Canadas of the Peak of Teneriffe. But the unity of such species is seldom sought, but rather their distinctiveness, though it may fairly be questioned which of these is the more desirable investigation. In some species an obvious capability of variation exists, as in the genus Coccinella; whilst others, though cosmopolitan, are everywhere identical, as Cynthia Cardui and Deiopeia pulchella. May we not, then, well inquire at least which species are thus variable, and thus unite, with supplementary climatal, local and nutrital appellations, many of those forms which now, as distinct species, so encumber our catalogues? Some of our most eminent botanists have recognized the existence of segregate as well as aggregate species; why cannot we do the same for Zoology? but our investigators are, almost without exception, segregators. Variations have been considered as tending to the improvement or preservation of the species; certainly the existing habits of many lead to their destruction. The brilliant colouring of the larva of Trachea piniperda or Acronycta Alni, and the exposed condition of that of Bombyx Rubi, contrasts strangely with the twig-like forms of Rumia cratægata, just as the blue eggs of the thrush or hedgesparrow are opposed to the eggs of the ringed plover or partridge, which so closely assimilate with the soil on which they are laid. Surely no theory, save one which involves mutations, can account for such apparent anomalies as these; and such a principle once fairly admitted, we may hope to see our nomenclature accommodated to our advanced knowledge.—*W. D. Crotch; Uphill House, November* 9, 1862.

Colias Edusa on the 24*th of October.*—Is it worth notice that I saw a Colias Edusa on Woking Heath on the 24th of October? It was fresh and vigorous, but as there was ice on the night of that day it was probably its last.—*W. C. Hewitson; Oatlands.*

Occurrence of Eupithecia arceuthata of Frey in Great Britain.—During my three years' residence in Buckinghamshire I have each autumn taken the larva of the above-named insect upon wild juniper, upon our hilly chalk downs. When first I found it—in 1860—I imagined it to be the larva of E. helveticata, but when the perfect insects appeared the following spring they seemed so different in size, colour and general appearance that I could not bring myself to believe that they were this species, and I determined to investigate the matter. During the past season I had an opportunity of sending a pair of the moths to Professor Zeller at Mesnitz. He replied at once that they were E. arceuthata, *Frey*, but added that he considered this species and E. helveticata, *Bdv.*, to be identical, the latter a northern variety of the former. He admitted, however, that he knew little or nothing of the larva and economy of the latter species, and had seen but few specimens of the perfect insect. Mr. Doubleday and Mr. Bond were inclined to concur in this opinion, but they also were imperfectly acquainted with the larva of either insect. M. Zeller very kindly sent me some fine bred specimens of E. arceuthata, which appears to occur freely in the neighbourhood of Mesnitz. They precisely tallied with my Buckinghamshire insects. I could not in any way convince myself that this species and E. helveticata were identical, and determined to make further investigations. I succeeded this summer in getting a number of impregnated eggs of E. arceuthata: these I distributed among different friends. Mr. Greene, Mr. Hellins and myself succeeded in rearing a few larvæ. Early in the autumn Mr. Andrew Wilson kindly sent me some living larvæ of E. helveticata, taken by himself in the neighbourhood of Edinburgh. I at once saw that there appeared to be annoying distinctive differences between the respective larvæ. After having taken careful descriptions of both I forwarded them to Mr. Buckler of Emsworth, who with his usual kindness sent me back two exquisitely life-like drawings. These I showed to Mr. Doubleday and Mr. Bond, who both expressed their conviction that the species might probably prove to be distinct. I have myself but little doubt on the matter; at any rate I am convinced that Dr. Staudinger has been very premature in amalgamating them in his lately published 'Catalogue of European Lepidoptera.—*H. Harpur Crewe; The Rectory, Drayton Beauchamp, December* 13, 1862.

Description of the Larva of Eupithecia arceuthata of Frey.—Stout and plump, same thickness from head to tail. Nearly a quarter larger than the larva of E. helveticata. Ground colour grass-green. Central dorsal line dark green. Subdorsal lines pale yellow or yellowish white, posteriorly dark green. Spiracular line white or yellowish. Segmental divisions yellow. Head somewhat bifid, when at rest slightly curved inwards, invariably uniform dull green. Belly bright green. Central ventral line yellow, and tip of central dorsal line always dark green. Spaces between subdorsal and spiracular lines darker green than rest of body. Feeds on wild juniper from end of September to middle of November; seldom full-fed till towards the end of October. Will feed on cypress if reared from the egg in confinement. Pupa enclosed in a slight earthen cocoon. Wing-cases transparent yellowish green. Thorax and abdomen rather paler. Tip of abdomen dull red. Perfect insect appears in confinement in May.—*Id.*

Description of the Larva of Eupithecia helveticata, Bdv.—Rather short and stumpy, much more so than preceding insect, altogether a most dumpy-looking larva. Same thickness from tip to tail. Ground colour grass-green, duller than E. arceuthata. Central dorsal line dark green, slender, and tip always dusky purplish brown or purple. Subdorsal lines broader dark green, edged anteriorly with pale straw-colour, and posteriorly sometimes with purple. Spiracular line waved, pale yellow or straw-colour. Head slightly bifid, when at rest curved inwards, invariably dusky purple, sometimes almost black. Segmental divisions yellowish. Belly duller green. Central ventral line yellowish. Feeds on wild juniper. Full-fed from beginning to middle of September, often a month or six weeks earlier than E. arceuthata.—*Id.*

Sirex Gigas an Enemy of the Hive Bee.— The following account of a curious fact connected with the habits of Sirex Gigas, communicated to me by my friend Miss Flora Jeston, of Henley-on-Thames, may not be uninteresting to your readers. She writes thus: —" One day about the last week in July we noticed an unusual commotion round the largest of the bee-hives of my friend Mr. Pennington. It had been for some time observed that very few bees were to be seen coming out, and he had wondered as to the cause, inasmuch as it was the strongest of the hives, and a supply of thirty pounds of honey had been left in November for the consumption of the bees during the winter. On the morning in question the hive was beset by hundreds of the Sirex Gigas, which were passing in and out, and the bees apparently engaged in trying to turn them out of the hive, from which they were issuing in great numbers. There was a battle of some hours, during which the bees killed many of their enemies. The Sirex, however, retained possession of the hive, and towards evening the last of the bees took their departure. The next morning every one of the Sirices had also disappeared. On examining the hive it was found nearly empty. No honey remained. The old comb was there, but there was no appearance of any new comb having been built during the summer. In fact nothing remained except some dead bees and Sirices, and a portion of old comb containing a little bee-bread." Miss Jeston gave me some of the insects in question. I presume that this was a foray of a Sirex army in search of honey or other food, and that they decamped when they had secured it. I never, however, before heard of the insect congregating in such numbers, but have generally seen only solitary individuals. I believe, too, that it is usually attached to the region of fir trees, and there is, if I am not mistaken, no fir plantation of any kind within a considerable distance of Henley. It is rather singular that a weak state of the hive should have been noticed where it was expected to be strong; but of course it is not to be supposed that the Sirices bred in the hive, after the fashion of Sitaris or Ripiphorus; for I believe their habit is to bore into fir trees to deposit their ova; and, moreover, remains of their pupæ, &c., could not have failed to be found and noticed.—*John A. Power; 52, Burton Crescent, October* 17, 1862.

Food-plants of Hypera Polygoni, Cionus Scrophulariæ, and one other of the Curculionidæ.—I noticed in the summer, at Llandudno, the larvæ of these beetles, and their depredations on three somewhat local plants—Silene nutans, Scrophularia vernalis and Medicago maculata. Silene nutans (the Nottingham catchfly) is a tenant of the limestone ledges that overhang the town. It flowers and seeds abundantly, and its capsules, besides yielding food to the Dianthœciæ, are preyed upon by the larvæ of Hypera Polygoni. The larva is pale green, pitted and spotted with black, with a pale line extending along the back. The head is black, and more or less of hairiness is visible throughout the body by the aid of the microscope. I often found the larva with its head buried in the capsule, the seeds of which it greedily devours. On passing into the pupal stage of its existence it attaches its light green semi-transparent cocoon to the axils of the dichotomous stems, so transparent, indeed, that the wrigglings of the pupa may be readily observed within its case. I picked off numbers of them, and had no difficulty in hatching the imago. The Scrophularia vernalis, another local plant, which I had previously only seen truly wild in Surrey, was completely stripped by the larvæ of Cionus. These feed seemingly gregariously on the leaves of the plant, and stick their brown granulated cases to the capsules. I procured them in plenty, as also the larvæ, which were as slimy as slugs. They were of an olive-green, with a darker line along the back. The head was black, with two black square spots immediately behind it. The little weevil emerged from the cases in due course, and I was disappointed that it was not something better than my old acquaintance Cionus Scrophulariæ. And now for my last beetle discovery. This was feeding on the leaves of Medicago maculata (the shamrock, I believe, of the North of Ireland), revelling, for aught I know, on the drop of St. Patrick's blood that stains each leaflet of the ternate leaf. The case was of loosely constructed net-work, with the interstices far apart. It was fixed to the withered leaves at the bottom of the stem. I found about a dozen such cases, which gave exit in a few weeks to a pretty brown weevil, apparently closely related to Hypera.—*Peter Inchbald; Storthes Hall.*

Acclimation of Sponges.—M. L'Amiral, whose departure for the coast of Syria with a view to obtain sponges for transplantation was mentioned in the 'Times' of April last, has now returned, and has presented a detailed report of his proceedings to the Société d'Acclimatation. M. L'Amiral distinguishes three kinds of sponges for which there is a demand—the fine and soft sponge, called *abiand*; the fine and hard sort, called *achmar*; and lastly the common sort, called *cabar* by the Arabs. These sponges are found in the Levant, within the 36th and 33rd degrees of latitude—that is, between Alexandretta and Saida. When the sponge is first gathered at the bottom of the sea, it is covered with a black but transparent gelatinous substance, resembling vegetable granulations, among which microscopic white and oviform bodies may be distinguished. These are the larvæ destined to perpetuate the species. When arrived at maturity they are washed out by the sea water which incessantly flows through the sponge; they then swim along, by the aid of the vibrating cilia or hairs with which they are provided, until they reach a suitable rock, to which they attach themselves, and there commence a new life. This emigration of larvæ from the parent sponge occurs about the end of of June and beginning of July. The fine qualities of sponges are chiefly found at a depth of fifteen fathoms or thereabout; the common sponge lies at depths varying between twenty and thirty fathoms. At Tripoli (on the coast of Syria, not of Africa) M. L'Amiral engaged some divers, who commenced operations on the 21st of May. The sponges gathered were immediately placed in boxes, through which a stream of sea-water was constantly made to flow, the animal matter being of course left on them, and protected from injury. These sponges arrived at Marseilles on the 17th of June; thence they were taken to Toulon and the islands of Hyères, where stone troughs, with five sponges in each, were sunk in different places. The success of the experiment will not of course be known until next season.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

November 3, 1862.—FREDERICK SMITH, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be given to the respective donors:—'Sitzungsberichte der Königl. bayer. Akademie der Wissenschaften zu München,' 1862, I. Heft. 2 and 3; presented by the Academy. 'The Canadian Naturalist,' Vol. vii. No. 4; by the Natural-History Society of Montreal. 'A Catalogue of the Lepidoptera of Devon and Cornwall,' Part 1; by the Author, J. J. Reading, M.E.S. 'The Zoologist' for November; by the Editor. 'The Journal of the Society of Arts' for October; by the Society. 'The Athenæum' for October; by the Editor. 'The Intellectual Observer,' No. 10; by the Publishers, Messrs. Groombridge and Sons.

'Entomological Botany' (Reprinted from the 'Zoologist' for 1854, 1855 and 1856); by the Author, H. T. Stainton. 'Stettiner Entomologische Zeitung,' 1862, Nos. 7—9; by the Entomological Society of Stettin. 'Journal of the Proceedings of the Linnean Society,' Vol. vi. No. 24; by the Society.

Election of Member.

John S. Stevens, Esq., of 24, Bloomsbury Street, London, was balloted for and elected a Member of the Society.

Alteration of the Bye-Laws.

A copy of the Bye-Laws of the Society, with certain proposed alterations therein, was laid on the table and taken as read to the Meeting. Notice was given that a Special General Meeting would be held, for the consideration of such alterations, on Monday, the 1st of December next, at 7 P.M.

Exhibitions, &c.

Sir John Hearsey exhibited Smerinthus denticulatus from Barrackpore, near Calcutta, and drawings of the larvæ feeding on Cordia Sebistena. In addition to a caudal horn the young larva had a frontal one, which, however, was entirely cast off at the last change of skin.

Mr. Bond exhibited two specimens of Lithosia Caniola, bred from the egg by Dr. Knaggs. They had remained ten days in the oval, eleven months in the larval, and ten days in the pupal state. The larva (a coloured drawing of which was shown) fed on clover, and changed its skin about forty times.

Mr. Bond also exhibited a monstrosity of Acherontia Atropos, the right side of which was of the usual form and hue, whilst the wings on the left side were darker, suffused and without distinct markings, and singularly jagged on the costa and outer margin.

Mr. Stainton exhibited bred specimens of Bactra uliginosana which he had received from Stettin, where the larva had been found rather plentifully on Lythrum salicaria. The species is one of the few Tortrices which are double-brooded, appearing in June and again in September. The June specimens have almost invariably a quadrate black spot on the disc, but in the September specimens, which vary considerably in other respects, the discoidal spot is generally wanting. Of the six specimens exhibited two belonged to the June, four to the September brood.

Mr. Stainton also called the attention of the Meeting to a very valuable paper on the genus Nepticula from the pen of Von Heinemann, of Brunswick, which has just appeared in the August and October numbers of the 'Wiener Entomologische Monatschrift.' It extends to fifty-two pages; thirty-three species are described, of which no less than ten are new, and independently of the value of the descriptive portion of the paper, it contains some very interesting observations; for instance, on the remarkable shortness of life of many of the Nepticula larvæ. How short that life actually was had not at present been determined, but a friend of Von Heinemann's had observed that on some apple twigs, which he examined with great attention, and carefully picked off every leaf in which he could find a mine, he actually found empty mines on some of the leaves after the lapse of thirty-six hours, showing that in that short time larvæ which had been previously invisible had fed up and gone away. This extreme shortness of larval life was only manifested in the summer broods of larvæ, the autumnal larvæ living considerably longer. Mr. Stainton remarked that it was but two years ago he was reading a paper at the British Association at Oxford, in which he commented on the extraordinary fact that the larvæ of Nepticula never moulted. Now the observations of Von Heinemann show that they do moult: of course there is something abnormal in the moulting of these mining larvæ, but after the larva has been inactive for a short time its skin cracks at the head, and it thus proceeds to eat its way forward, because it can only by eating a path before it obtain space to draw itself from its old skin; this in the confined space of the mine gets drawn forward for a slight distance, and is eventually lost to sight in the excremental track. Von Heinemann had observed the moulting in several species, and had remarked that it generally took place at some part of the mine where the latter changed its character, either from a slender gallery to a blotch, or from a spiral mine to an irregular one, or from a very narrow gallery to a broader one. With regard to the specific distinctions Von Heinemann found important characters were afforded by the cilia and by the length of the antennæ, only as the latter varied in the sexes it was necessary in this respect to compare males with males and females with females. In examining the wing-veins of these insects, which he had done in a number of species, Von Heinemann found there were three distinct forms, a complicated form, a comparatively simple one, and an intermediate form between the other two.

Mr. Stainton then read the following brief notes on the ten new species:—

1. *N. Æneella.* Closely allied to N. ruficapitella. Larva on hawthorn, in a mine like that of N. Oxyacanthella.
2. *N. Samiatella.* A black-headed oak species, distinct from N. atricapitella; the mines not distinguishable.
3. *N. Nitidella.* A single caught specimen, with polished pale bronze anterior wings.
4. *N. Basiguttella.* A new species from an oak-feeding larva, whose mine is entirely filled with green excrement.
5. *N. Pretiosa.* Bred from Geum urbanum. Allied to N. Æneofasciata.
6. *N. Dulcella.* Allied to N. Continuella. Bred from strawberry leaves; larvæ in mines similar to those of N. Fragariella.
7. *N. Inæqualis.* Also bred from strawberry leaves; the wings narrow and the fascia placed very posteriorly.
8. *N. Distinguenda.* Bred from birch, mine not sufficiently observed. Allied to N. Betulicola and to N. Glutinosæ.
9. *N. Obliquella.* Captured specimens. Perhaps most nearly allied to N. Salicis.
10. *N. Simplicella:* Captured specimens; on beech trunks. Allied to N. Immundella.

Mr. Stainton said he thought it was rather hazardous describing Nepticulæ from captured specimens, but that he must admit the whole paper of Von Heinemann showed such sharp-sightedness and so much acumen that all his remarks were entitled to considerable weight. It might be mentioned, for instance, that Von Heinemann had found a character often useful for separating species which we could not see in any of our specimens, because it was in the centre of the prothorax, exactly where we put the pin; hence this character could be observed only in those specimens which were pinned through the abdomen.

Professor Westwood called attention to an article by Mr. Newman in the 'Zoologist' for October last (Zool. 8216), on the genus Acentropus. Referring to the date of his own memoir in the 'Transactions of the Entomological Society,' the Professor was surprised to find that Mr. Newman had assumed a share in the merit (whatever it might be) of the reference of the genus to the order Lepidoptera, which was due to himself and Dr. Hagen. His grounds for such reference were—1. The nature of the clothing of the wings. 2. The possession of tippets. 3. The possession of a bristle and socket connecting the wings. 4. (As proved by Mr. Edwin Brown's discovery of the preparatory states), the structure of the pupa. Mr. Newman's arguments were—1. That the scales in Acentropus are unlike those of any other Lepidopterous insect, and resemble those on the elytra of some beetles. 2. That tippets do not exist in the Psychidæ. 3. That the wings in Hymenoptera are fixed together by a series of hooklets. 4. That it is not stated how the pupa of Acentropus differs from that of Phryganea. To these arguments the Professor replied—1. That the clothing of the wings of Acentropus consists of scales (and not of hairs as in Trichoptera). They vary in their form, and Lyonnet has shown how infinitely the scales in a single species (Cossus) vary, whilst no one would think of assigning Acentropus to the order Coleoptera. 2. That (even if true), the absence of tippets in Psyche is not proof that another insect which does possess those appendages does not belong to the order in which tippets are exclusively characteristic. 3. The spring and socket of Acentropus are identical with those of nocturnal Lepidoptera, and totally unlike the hooklets of the Hymenoptera, with which order no one would think of uniting Acentropus. 4. The pupa of Acentropus agrees with those of nocturnal Lepidoptera, except in a modification of the spiracles, as stated by Professor Westwood in a paper read before the British Association at Oxford in 1860, of which a slight report is published in the volume of 'Reports' of that Meeting. It entirely differs from that of Phryganea both in general characters, and especially in wanting the peculiar mandibles of the pupa by which Phryganea is associated with the subnecromorphotic Neuroptera.

Professor Westwood exhibited a further series of leaves of plants mined by Lepidopterous and Dipterous larvæ, which had been arranged for the cabinet by Mr. Stone of Brighthampton, and by him presented to the Oxford Museum.

Professor Westwood also called attention to the ravages committed on celery plants by the larva of the Dipterous Tephritis Onopordinis.

The President exhibited the different stages of a species of sawfly which he conceived to be Nematus trimaculatus, *St. Farg.*, and read the following extract from a letter from F. M. Rayner, Esq., of Callowell, Stroud, dated the 7th of June, 1862:—

"Having seen several letters and papers in the 'Times' and other publications, with reference to the great destruction to the gooseberry and currant bushes by a grub said to be the caterpillar of a Lepidopterous insect (Phalæna wavaria), I directed my attention to the subject. I collected several of the larvæ in the beginning of May, and discovered at once by the number of the feet (18) that they were not Lepidopterous. I fed them upon the leaves of their respective trees, and examined them frequently during the day. No particular change occurred until the last casting of the skin, when the larva turned from a bluish green, covered with shining jet-black tubercles, each bearing a seta, to a beautiful yellowish green, the first and the last two segments being of a pale orange-colour, and having no tubercles or setæ, but quite smooth, with the exception of the last few posterior segments, which were slightly pubescent. The cocoon was at first green, but afterwards changed to black. In about three weeks the imago made its appearance in the form of a Hymenopterous insect. I think it belongs to the Securifera, Tenthredinata, *Latreille*, but I know little or nothing about the Hymenoptera. I have sent you a small bottle containing specimens of the insect in its different stages, but the spirit has slightly altered their colour. One circumstance strikes me as being rather curious: all the larvæ I collected turned out females. I was obliged to procure the males by pinning a female to a piece of cork and placing it under the bushes."

Mr. S. Stevens mentioned that the Coleopterous insect described by Dr. Schaum at the September Meeting of the Society, under the name of Scaritarchus Midas, had been previously described under the name of Mouhotia gloriosa in Guérin's Magazine for August last, and, according to the rule of priority, the last mentioned name must prevail.

Mr. W. W. Saunders exhibited a dozen species of Catascopus collected by Mr. A. R. Wallace in the East Indian Isles, including the four new species described in the paper hereinafter referred to, in connection with which Professor Westwood stated that a paper had been published by the Natural History Society of Basle, in or about 1843, containing descriptions of Catascopi from Africa. This paper appears to have escaped notice, and he thought it not unlikely that some of the insects therein described would be found to be identical with some of those afterwards described by Hope and Andrew Murray.

Papers read.

Mr. W. W. Saunders read a paper "On the species of Catascopus found by Mr. Wallace in the Malay Peninsula and the East India Isles," containing descriptions of four new species, C. Schaumii, C. Aruensis, C. lævigatus and C. splendidus.

Mr. Waterhouse read a "Note upon certain British Species of the Genus Quedius, in which the elytra are more or less æneous and the scutellum punctured."—*J. W. D.*

SPECIAL GENERAL MEETING.

December 1, 1862.—FREDERICK SMITH, Esq., President, in the chair.

Alteration of Bye-Laws.

The Secretary read a requisition signed by six Members of the Society, and presented to the President and Council, requesting that a Special General Meeting might be called for the consideration of the alterations in the Bye-Laws therein specified. He announced that the same had been read at three successive General Meetings of the Society, and also read the notice to Members convening the Special Meeting for that evening. The proposed alterations in the Bye-Laws were then put to the vote and adopted.

ORDINARY MEETING.

The Ordinary Meeting of the Society was held the same day.

Donations.

The following donations were announced, and thanks ordered to be given to the respective donors:—'Classification of the Coleoptera of North America,' Part 1, by John L. Leconte, M.D.; 'Monographs of the Diptera of North America,' Part 1, by H. Loew;

'Synopsis of the Described Lepidoptera of North America,' Part 1 (Diurnal and Crepuscular Lepidoptera), by John G. Morris; 'Synopsis of the Neuroptera of North America, with a List of the South-American Species,' by Herman Hagen; all compiled for and presented by the Smithsonian Institute. 'Proceedings of the Entomological Society of Philadelphia for 1861 and 1862;' by the Society. 'Notes on the Thysanura,' Part 1 (Sminthuridæ); by the Author, John Lubbock, F.R.S., &c. 'Proceedings of the Literary and Philosophical Society of Liverpool during the Fifty-first Session, 1861—62,' No. xvi.; by the Society. 'The Zoologist' for December; by the Editor. 'On the Genus Colias in North America;' by the Author, Samuel H. Scudder. Taylor's 'Calendar of the Meetings of the Scientific Bodies of London for 1862—63;' by the Publishers. 'The Journal of the Society of Arts' for November; by the Society. 'Wiener Entomologische Monatschrift,' Band I—V; by Julius Lederer. 'Die Noctuinen Europa's mit Zuzichung einiger bisher meist dazu gezählten Arten des Asiatischen Russland's, Kleinasien's, Syrien's und Labrador's: systematisch bearbeitet von Julius Lederer;' by the Author.

New Members.

Percy C. Wormald, Esq., of 6, Brondesbury Terrace, Kilburn, was ballotted for and elected a Member of the Society.

Certificates in favour of F. Moore, Esq. (a Subscriber to the Society), and of E. A. Smith, Esq., of 27, Richmond Crescent, Islington, as Members, were read for the first time, and ordered to be suspended in the Meeting Room.

Exhibitions, &c.

Mr. Stevens exhibited a fine collection of Coleoptera and Diurnal Lepidoptera, collected by Mr. A. R. Wallace in New Guinea and the adjacent island of Salwatty.

Mr. F. Moore exhibited specimens of a white saccharine substance or kind of "manna," which is found abundantly on the leaves of certain Eucalypti (E. dumosa, &c.), in the north-west parts of Australia Felix, and is eaten by the natives, who call it "lerp" or "laap." This substance is stated by Mr. T. Dobson (Proc. Royal Society of Van Dieman's Land, 1851) to be the cup-like coverings of a species of Psylla (P. Eucalypti), formed by the insect whilst in the larva state.

Mr. Hewitson sent for exhibition some stems of laurel trees, with the following note in reference thereto:—

"In cutting down some laurels, at some four or five feet from the ground, I noticed that they were pierced longitudinally by a round hole about the size of a pistol-bullet, at first open and clear, afterwards filled with sawdust, but so loose that it was easily pushed out for the length of a foot with a very slender stick; but in cutting sections from the tree lower down, though the hole increased in size, it also became more obstructed until near the root, where (although there is still an indication of the perforation) the hole proceeds no further after passing through nearly five feet of solid wood. One piece of the tree shows where the hole commences, at the side where a branch has been cut off; the other was four feet lower down, where the hole becomes obstructed and looks more like decay than the boring of a grub. Is this a question for entomologists or for arboriculturists?"

To this query no satisfactory answer was given; but it was suggested that the perforation, if caused by a larva at all, was probably made by that of Zeuzera Æsculi.

Mr. Waterhouse exhibited the following four British species of Coleoptera, *viz.*, Oxytelus piceus, *Erichson, &c.*, Quedius umbrinus, *Erichson*, Haplocnemus nigricornis, *Fab.*, and Lathridius rugosus, *Herbst*, and communicated the following notes relating to them :—

"With regard to the Oxytelus I have to state that the species was introduced into my Catalogue from the determination of a single male specimen taken by myself, but of which I did not know the exact locality. Recently, however, I have discovered a second specimen (a female) amongst some Staphylinidæ which were procured by me from cow-dung in the well-known field immediately opposite the inn at Birchwood Corner, on the 1st of July, 1859. O. piceus most closely resembles O. laqueatus, but may be distinguished by the comparatively large size of the eye, by there being only a single groove on the back part of the head above (instead of three grooves, as in O. laqueatus), and by the head being less concave in front. In the male of O. laqueatus the longitudinal diameter of the head behind the eye is greater than that of the eye, whereas in O. piceus the eye presents the greater diameter. In the female of the last-mentioned insect, from the large size of the eye, and the great prominence of that organ, the head nearly resembles that of O. sculptus, but that insect is readily distinguished from O. piceus by its comparatively long antennæ and by certain peculiarities of structure. In O. piceus the fifth is the first of the dilated pubescent joints, and presents a peculiar modification of the peduncle : at first small and slender, to join the preceding joint it is suddenly dilated above the base into a shallow cup-like process, to which a nearly hemispherical apical part of the joint is attached ; this latter part is rough and pubescent, whilst the peduncular part is smooth. In the following joints the peduncle is dilated above the base into a circular flat (or nearly flat) plate, attached to which is the body of the joint. In O. sculptus the peduncle of the fourth joint is dilated into a round, slightly concave (and in the following joints flat) plate ; and the dilated pubescent joints may here be said to commence from the fourth instead of the fifth joint. This structure corresponds very closely with that which will be found in O. rugosus and O. insectatus, whilst all the remaining British species of Oxytelus correspond very closely in the structure of their antennæ with O. piceus.

"Of Quedius umbrinus I have long possessed a British specimen, but had never determined it until recently, when a second specimen was sent me to be named by Mr. Morris Young of Paisley. It most nearly resembles the dark (pitchy black) varieties of Quedius mauro-rufus, but may be distinguished by its less thickly and more strongly punctured elytra. The antennæ are rather stouter and the joints longer, and the head is somewhat broader than in Q. mauro-rufus.

"Haplocnemus nigricornis. Dr. Power long since called my attention to the fact that we possessed two species of Haplocnemus in England, and I subsequently obtained a second species from Charles Turner, who took it in the New Forest. It differs from our well-known H. impressus of Marsham in being a trifle smaller, in the general colouring of the upper parts (instead of being of a brassy bronze hue being more inclined to green, or, in parts to blue), and in the tibiæ, tarsi and apex of the femora being entirely of a palish testaceous colour. The three basal joints of the antennæ, moreover, are chiefly testaceous, the first and third joints being but slightly tinted with æneous. The thorax is rather narrower and longer, more contracted in front, and less thickly and less strongly punctured; the reflected lateral margin is rather broader, and is rufescent, as is likewise the lateral margin of the elytra on the under sides, and these parts are less distinctly crenulate. Lastly, the punctures of the elytra are larger, less numerous and less clearly defined. Upon re-examining the descriptions of Fabricius, Gyllenhal, &c., I now believe that we must apply the name nigricornis to this insect, and retain that of impressus for the Marshamian species, with the tibiæ more or less dusky. The species would then stand thus :—

1. Haplocnemus nigricornis.
   Aplocnemus impressus, *var.*, *Steph. Illustr.*
   Dasytes nigricornis, *Fab. Syst. El.* ii. 73, 10; *Ent. Syst.* i. 2, 81, 16.
   ——— ———, *Payk. Faun. Suec.* ii. 158, 3.
   ——— ———, *Gyll. Ins. Suec.* i. 327, 4.

2. Haplocnemus impressus, *Steph. Illustr.* iii. 316 (Aplocnemus, *id.*) and collection.
   Crioceris impressus, *Marsh. Ent. Brit.* 226, 16.
   Haplocnemus nigricornis, *Waterh. Catalogue.*

" Lathridius rugosus, *Herbst, Coleopt.* v. 6, 3, Tab. 44, fig. 3, c, C. (Latridius).
——— ———, *Gyll. Ins. Suec.* iv. 140, 20.
——— ———, *Mannerh. in Germar's Zeitsch. für Entom.* v. (1844), 90, sp. 28.

> ' L. oblongus, niger, glaber, ore antennis pedibusque ferrugineis, thorace brevi, lato, crebre punctato, lateribus dilatato-rotundatis, dorso convexo, medio obsolete canaliculato, postice transversim profunde impresso ; elytris obsoletius striato-punctatis, interstitiis lævibus. Long. ⅚—1 lin.; lat. ⅜—½ lin.'

" The above description, from Mannerheim, agrees perfectlywell with the insect now exhibited, and which I long since separated in my English collection as a distinct species, but was unable to name. Finding some German specimens like it in the British Museum collection, and bearing the name 'rugosus,' I was led to examine the descriptions of that species, which I must formerly have overlooked. I suspect that the very inappropriate specific name applied to it was the cause of the oversight, it being distinguished by the smoothness of its elytra. I have seen specimens of this species in the Rev. A. Matthews' collection. It is usually smaller than L. minutus and of a shorter form, and approaches more nearly to my L. testaceus, but that insect is still shorter and broader, and has the elytra more distinctly punctate-striated. Its colour appears to be always testaceous, whereas L. rugosus is black."

Mr. M'Lachlan exhibited a Dipterous parasite on the larva of a Trichopterous insect. It had been bred by Mr. Parfitt, of Exeter, from a larva-case of Limnephilus marmoratus, and had emerged through the water, though the eggs had probably been laid by the parent fly when the case was floating on the surface. The name of Hydrotachina Limnephili was proposed for this novelty.

Papers read.

Major Parry communicated two papers: one entitled " Some Remarks on the Catalogue of Lucanidæ recently published by M. James Thomson in the 'Annales de la Société Entomologique de France';" the other entitled " Further Descriptions and Characters of undescribed Lucanoid Coleoptera." The latter paper was supplementary to that read by Major Parry at the October Meeting of the Society. The whole of these descriptions are intended to be incorporated with others in a general Catalogue of the family, to be published, with figures, in the 'Transactions' of the Society.—*J. W. D.*

Just published, demy 12mo., cloth, price 6s.,

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T. Batis	0	3	A. pyramidea	0	2
C. Or	0	6	E. punctaria	0	2
D. Orion	1	3	V. limbaria	0	3
L. straminea	1	9	E. pumilata	0	4
L. pudorina	1	0	S. certata	0	4
L. phragmitidis	0	4	C. obliquaria	0	4
N. despecta	0	4	R. sericealis	0	4
N. fulva	0	2	C. Phragmitellus	0	9
N. crassicornis	1	0			

T. Last will be thankful to receive orders.

☞ I have great pleasure in recommending Mr. Last: his specimens of Diphthera Orion and some other species are the best I have seen.—*Edward Newman.*

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